

# DATA PROJECTOR

EX785 (DP-3638)

EW775 (DP-7606)

SERVICE MANUAL



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## 1. COMPLIANCE OF SAFE REPAIR

Be sure to read this Service Manual before providing services. In the projector, full consideration is taken to ensure safety for fire, electric shock, injury, harmful radiation, and substance. Therefore, observe the notice described in this Service Manual so that safety is kept when providing services. Moreover, be sure to observe the notice described in the Instruction Manual.

Pay attention to the following items during service inspection.

### 1-1 Cautions during disassembling and assembling

1. This equipment contains parts under high voltage. When making repairs, etc.  
Be sure to pull out the power plug beforehand to insure safety.
2. Parts may be very hot immediately after use.  
Make sure the equipment has cooled off sufficiently before carrying out repairs.
3. Make sure that parts and screws and wiring, etc. are returned to their original positions.  
Tube, tape and other insulation materials have been used for safety reasons.  
The internal wiring has been designed to avoid direct contact with hot parts or parts under high voltage when using clamps or other tools.
4. The parts used in this device have special safety features such as flame-resistance and anti-voltage properties. When replacing parts, always use parts supplied from the factory.
5. After finishing operations make sure that all parts and wires have been returned to their original position and that there has been no deterioration of the area around the location that was worked on.
6. Be sure to use a grounding strap (wrist band) during repair and inspection.

### 1-2 Lamp

During current conduction, the lamp is in the high-temperature state. In this case, pay careful attention because a high voltage is used. When replacing a lamp, replace it after confirming that the lamp has gotten cold sufficiently.

### 1-3 Lens

Do not look into a lens during projection. This damages your eyes.



## **1-4 Eye Safety Warnings**

1. Avoid staring directly into the projector's beam of light at all times.
2. Minimize standing facing into the beam.  
Keep your back to the beam as much as possible.
3. Ensure that projectors are located out of the line of sight from the screen to the audience; this ensures that, when presenters look at the audience, they do not also have to stare at the projector lamp.
5. When projector is used in a classroom, adequately supervise students when they are asked to point out something on the screen.
6. In order to minimize the lamp power needed, use room blinds to reduce ambient light levels.

## 2. SPECIFICATIONS

### 2-1. Summary Specifications

Model	EX785 (DP-3638)	EW775 (DP-7606)
Display type	TI DLP DMD 0.7", 12deg, Type-A, XGA	TI DLP DMD 0.65", 12deg, Type-A, WXGA
Resolution	1024X768 Native (4:3) Native	1280X800 Native (16:10) Native
Brightness	Bright: 4400lm(Avg.), 3800lm(Min) Normal: 3500lm(Avg.), 3000lm(Min)	Bright: 3900lm(Avg.), 3300lm(Min) Normal: 3200lm(Avg.), 2700lm(Min)
Projection distance	1.5 meters ~ 7 meters	
Projection screen size	37" to 215"	34.3" to 200"
Throw ratio (D/W)	1.6 ~ 2	1.62 ~ 2.03
Vertical keystone correction	+/- 30 degrees (depend on input signal)	
Projection methods	Front / Rear-Desktop & Front / Rear-Ceiling	
Data compatibility	VGA, S-VGA, XGA, SXGA, WXGA	
SDTV/EDTV/ HDTV	480i/576i, 480p/576p, 720p, 1080i, 1080p	
Video compatibility	NTSC, PAL , SECAM	
H-Sync	15, 30 – 91.4 KHz	
V-Sync	43 - 87 Hz	
Operation temperature	5° ~ 40°C	
Dimensions	431 mm (W) x 169 mm (H) x 354 mm (D)	
Weight	15 lb (Typical)	
AC Input	AC Universal 110 ~ 240 @50~60Hz , Typical @110 VAC (100~240)/±10%	
Power consumption	Typical 390W (normal mode)	
Stand By	< 1 watts @ 110Vac / 60Hz	
Lamp	E20.9 / 330W	
PC	VGA IN x 2 / VGA OUT x 1	
Video	Composite video (RCA X 1), S-Video (DIN)	
	Component, RCAx3 (G/B/R)	
Digital	HDMI x 1, DVI-D	
Trigger	12V A / 12V B	

## 2-2.DMD Specifications

	Unit	Min.	Ma.	Typical	Notes
DMD type (EX785)				TI DLP DMD 0.7", 12deg, Type-A, XGA	
Number of Columns	Pixel			1024	
Number of Rows	Pixel			768	
DMD type (EW775)				TI DLP DMD 0.65", 12deg, Type-A, WXGA	
Number of Columns	Pixel			1280	
Number of Rows	Pixel			800	
Panel Operating Temp.	°C	10	65		
Ambient Temp	°C			25	

## 2-3.Color Wheel

Spec.	Unit	Min.	Max.	Typical	Notes
Color Segment				RYGWB	55mm

## 2-4. Lamp

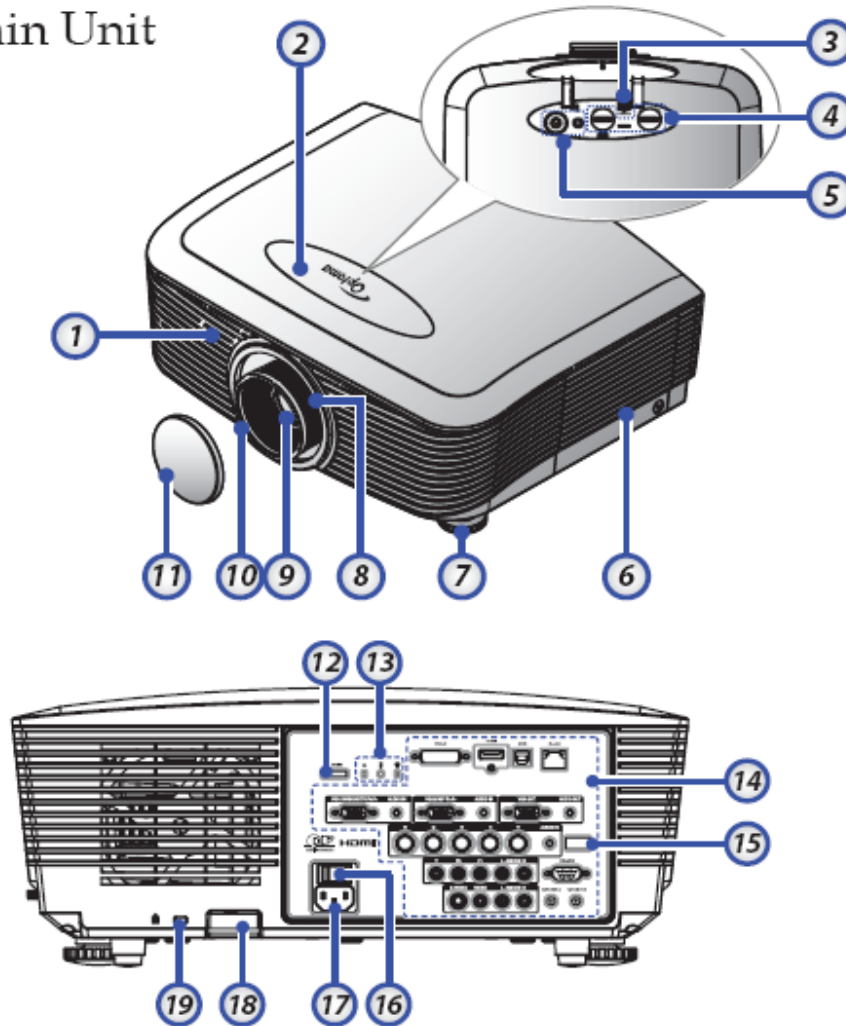
	Description
Vendor	OSRAM
Type	E20.9 330W
Lamp Life	Standard Mode, 1500 Hours Standard, 50% Survival Rate
	ECO Mode, 2000 Hours Typical, 50% Survival Rate

## 2-5. Terminal connectors

Input	
Digital	HDMI x 1 / DVI-D
Analog (VGA IN)	RGB HD-15 x 2
Analog (VGA OUT)	RGB HD-15 x 1
Video	Composite video
S-Video	Mini dim x 1
Component 1	YPbPr RCA x 3 (G/B/R)
Component 2	BNC x 5 (R/G/B/H/V)
Audio in	3.5mm min jack x 3
Audio in	L/R RCA x 2
Audio out	3.5mm min jack x 1
Control	
RS-232	DSUB-9 x 1
DC out (screen trigger)	DC Jack x 2 (12V±10%; 200mA)
Internet	RJ-45
USB	USB connector type B

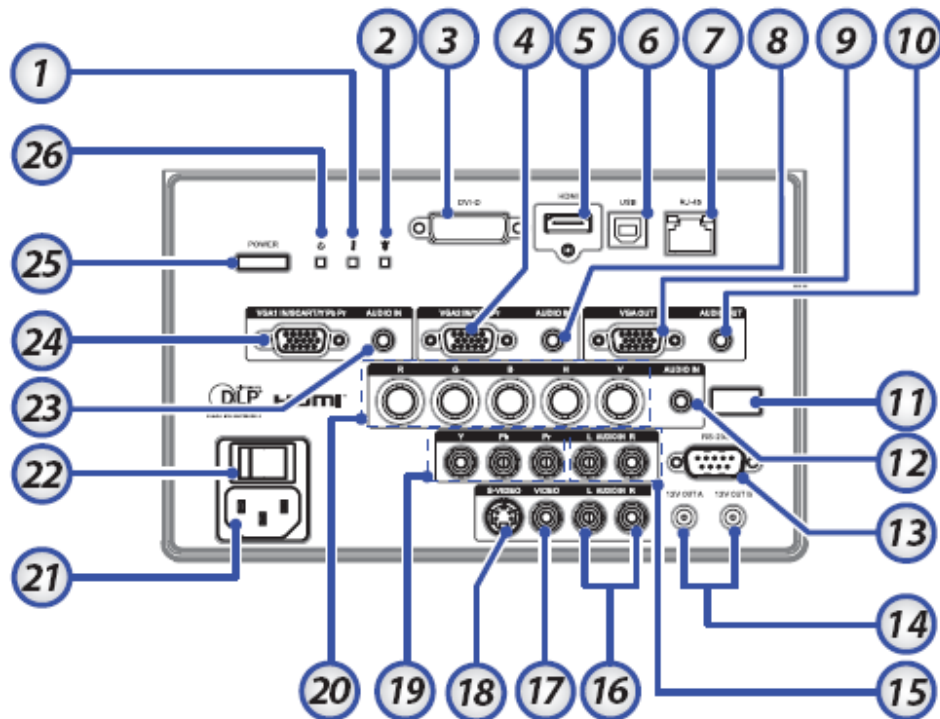
## 2-6. Main Unit View

### Main Unit



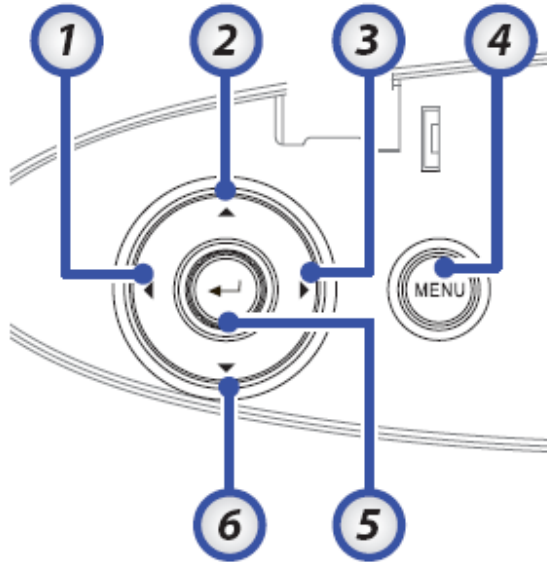
- |   |                              |
|---|------------------------------|
| 1. Front IR receive                                       | 11. Lens Cap                 |
| 2. Top Cover  | 12. Power Button             |
| 3. Lens Release Button                                    | 13. LED Indicators           |
| 4. Vertical and Horizontal Lens Shift Adjustment Control. | 14. Input/Output connections |
| 5. Control Panel  | 15. Back IR Receive          |
| 6. Lamp Cover   | 16. Power Switch             |
| 7. Tilt-Adjustment foot                                   | 17. Power Socket             |
| 8. Zoom   | 18. Security Chain Lock      |
| 9. Lens   | 19. Kensington Lock          |
| 10. Focus   |                              |

## 2-7. I/O Ports Illustration about Projector



- |                            |                                     |
|----------------------------|-------------------------------------|
| 1. Temp LED                | 14. 12V OUT A/B Connector           |
| 2. Lamp LED                | 15. AUDIO IN L/R RCA YPbPr          |
| 3. DVI-D Connector         | 16. AUDIO IN L/R RCA Video          |
| 4. VGA 2 / YPbPr Connector | 17. Video Connector                 |
| 5. HDMI Connector          | 18. S-Video Connector               |
| 6. USB Connector           | 19. YPbPr Connectors                |
| 7. RJ-45 Connector         | 20. BNC Connectors                  |
| 8. AUDIO IN VGA2           | 21. Power Socket                    |
| 9. VGA Connector           | 22. Power Switch                    |
| 10. AUDIO OUT 3.5mm Jack   | 23. AUDIO IN VGA1                   |
| 11. Back IR Receiver       | 24. VGA 1 / SCART / YPbPr Connector |
| 12. AUDIO IN BNC           | 25. Power Button                    |
| 13. RS-232 Connector       | 26. Power LED                       |

## 2-8. Control panel

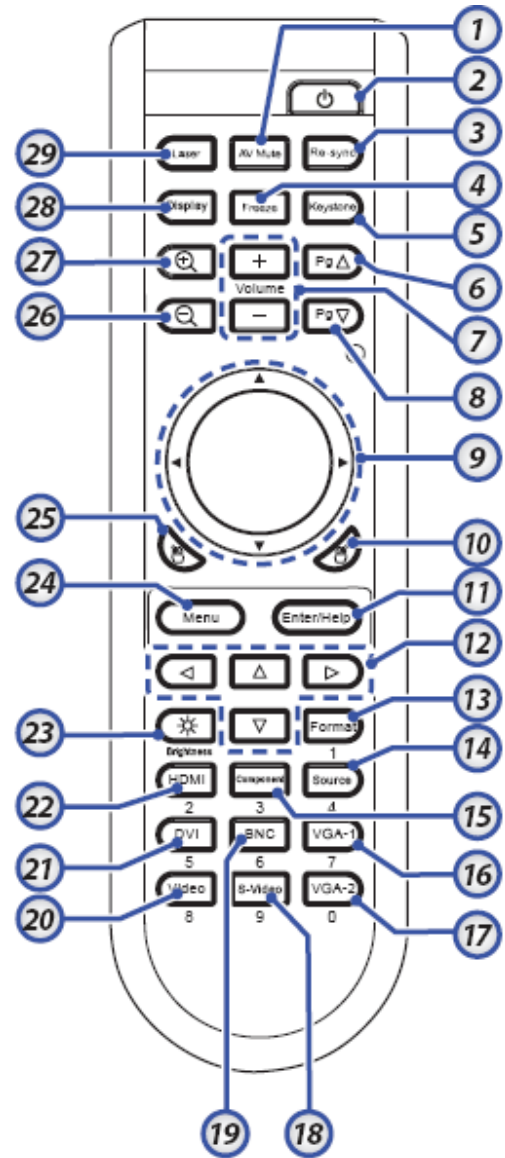


1. Source / Left
2. Keystone + / Up
3. Re-Sync / Right
4. Menu
5. Enter/Help
6. Keystone - / Down

## 2-9. Remote Control Parts

### Remote Control

1. AV Mute
2. Power On/Off
3. Re-Sync
4. Freeze
5. Keystone
6. Page Up
7. Volume + / -
8. Page Down
9. PC / Mouse Control
10. Mouse Right Click
11. Enter/Help
12. Four Directional Select Keys
13. Format/1
- (Number Button for password input)
14. Source / 4
15. Component / 3
16. VGA-1 / 7
17. VGA-2 / 0
18. S-Video / 9
19. BNC / 6
20. Video / 8
21. DVI / 5
22. HDMI / 2
23. Brightness
24. Menu
25. Mouse Left Click
26. Zoom Out
27. Zoom Out
28. Display
29. Laser Pointer



**Important:**

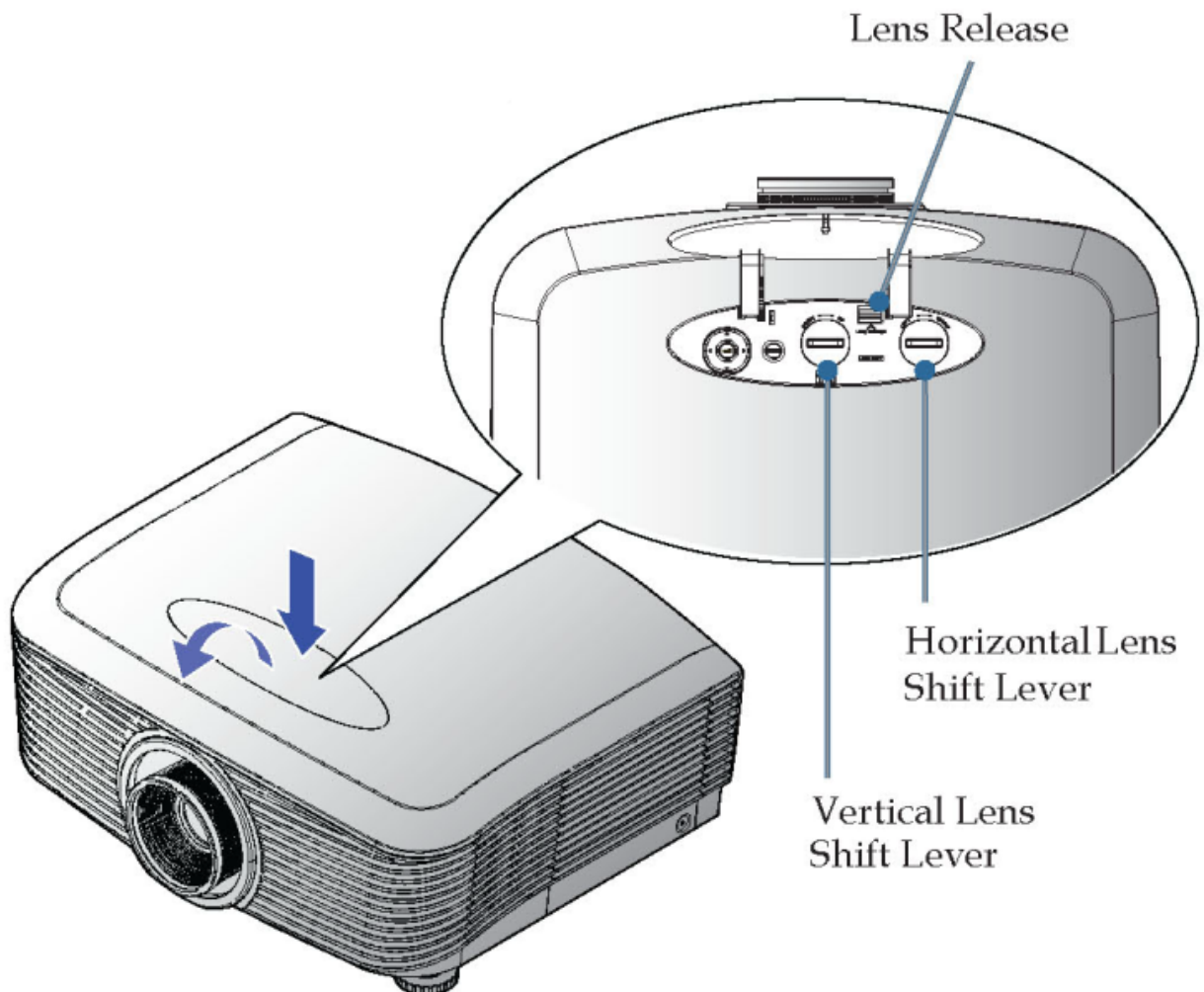
- 1.** Avoid using the projector with bright fluorescent lighting turned on. Certain high-frequency fluorescent lights can disrupt remote control operation.
- 2.** Be sure nothing obstructs the path between the remote control and the projector. If the path between the remote control and the projector is obstructed, you can bounce the signal off certain reflective surfaces such as projector screens.
- 3.** The buttons and keys on the projector have the same functions as the corresponding buttons on the remote control. This user's manual describes the functions based on the remote control.

**Remote Control Operating Range**

The remote control uses infrared transmission to control the projector. It is not necessary to point the remote directly at the projector. Provided you are not holding the remote perpendicular to the sides or the rear of the projector, the remote will function well within a radius of about 7 meters (23 feet) and 15 degrees above or below the projector level.



## 2-10. Adjusting Projected Image Position Using PureShift



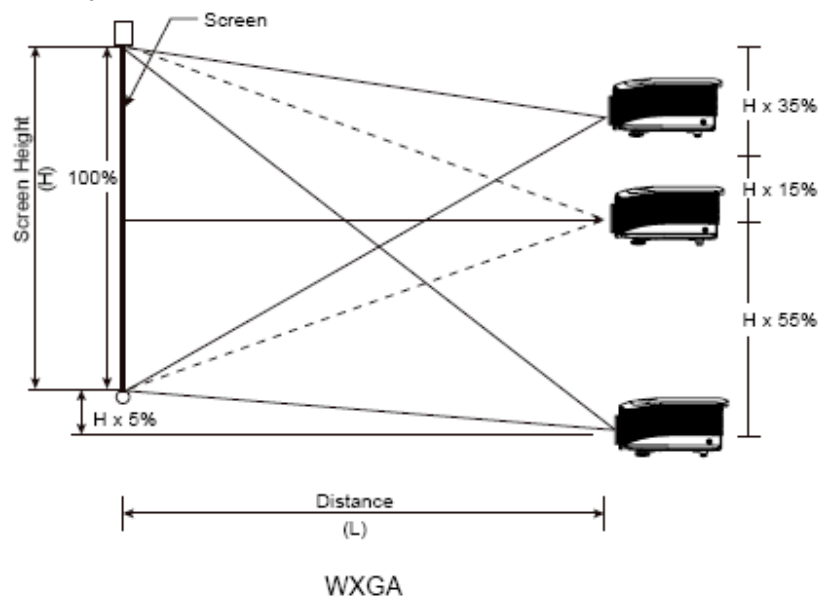
## Adjusting the vertical image position

The vertical image height can be adjusted between 110% and -10% for XGA, 105% and -15% for WXGA of image height. Note that the maximum vertical image height adjustment can be limited by the horizontal image position.

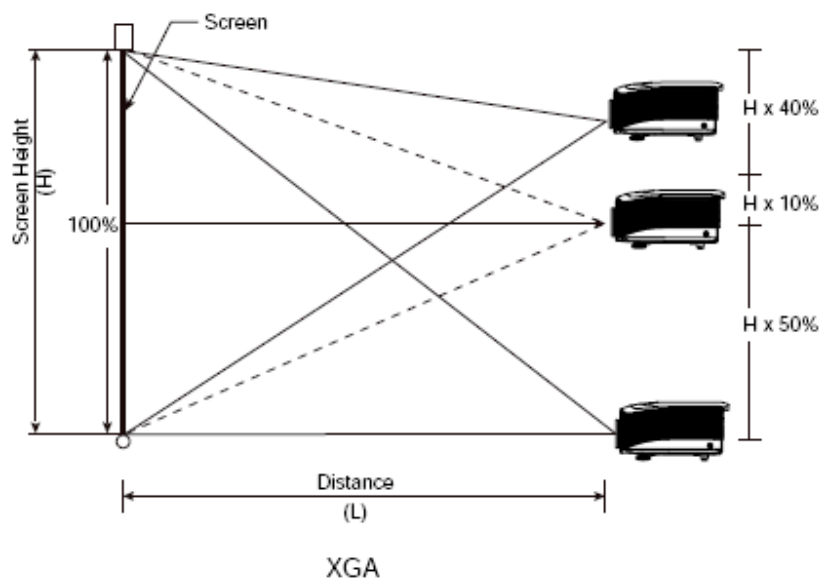
For example it is not possible to achieve the maximum vertical image position height detailed above if the horizontal image position is at maximum.

Please consult the PureShift Range diagram below for further clarification

### EW775 (WXGA)



### EX785 (XGA)



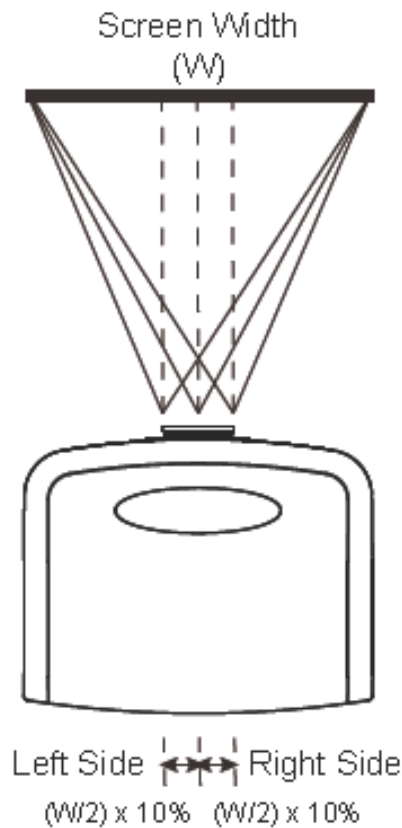
## Adjusting the horizontal image position

With the lens in the center position the horizontal image position can be adjusted to the left or right by up to a maximum of 10% of the half image width.

Note that the maximum horizontal image height adjustment can be limited by the vertical image position.

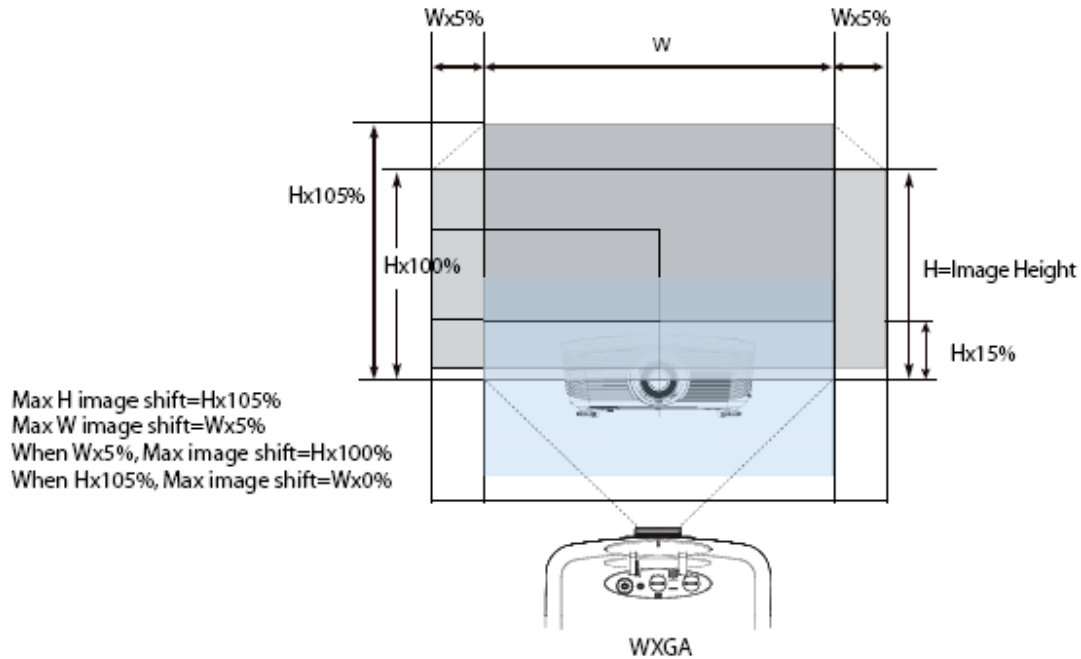
For example it is not possible to achieve the maximum horizontal image position if the vertical image position is at maximum.

Please consult the PureShift Range diagram below for further clarification.

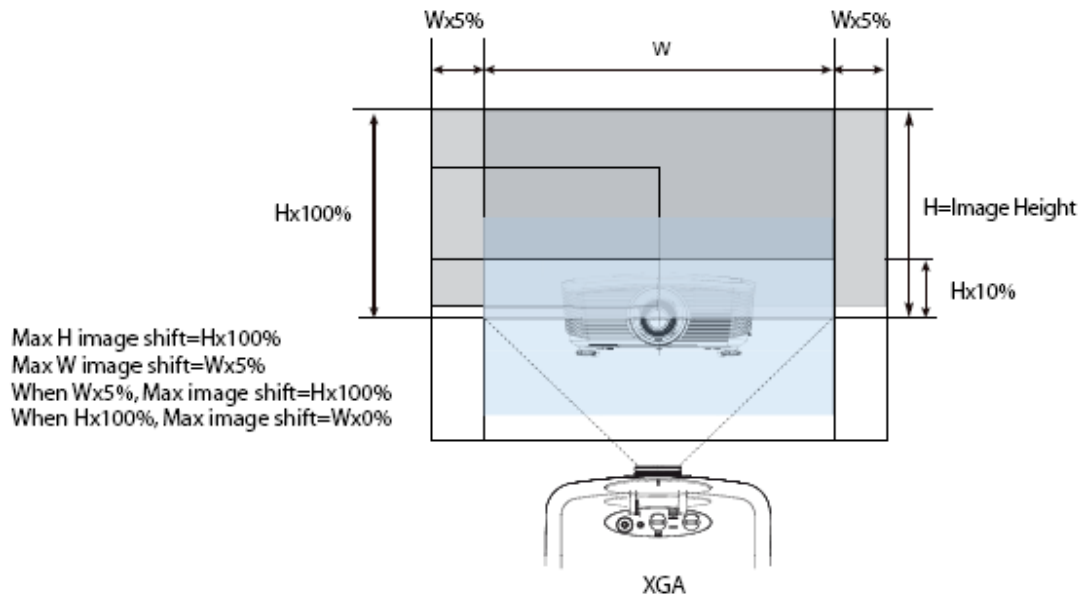


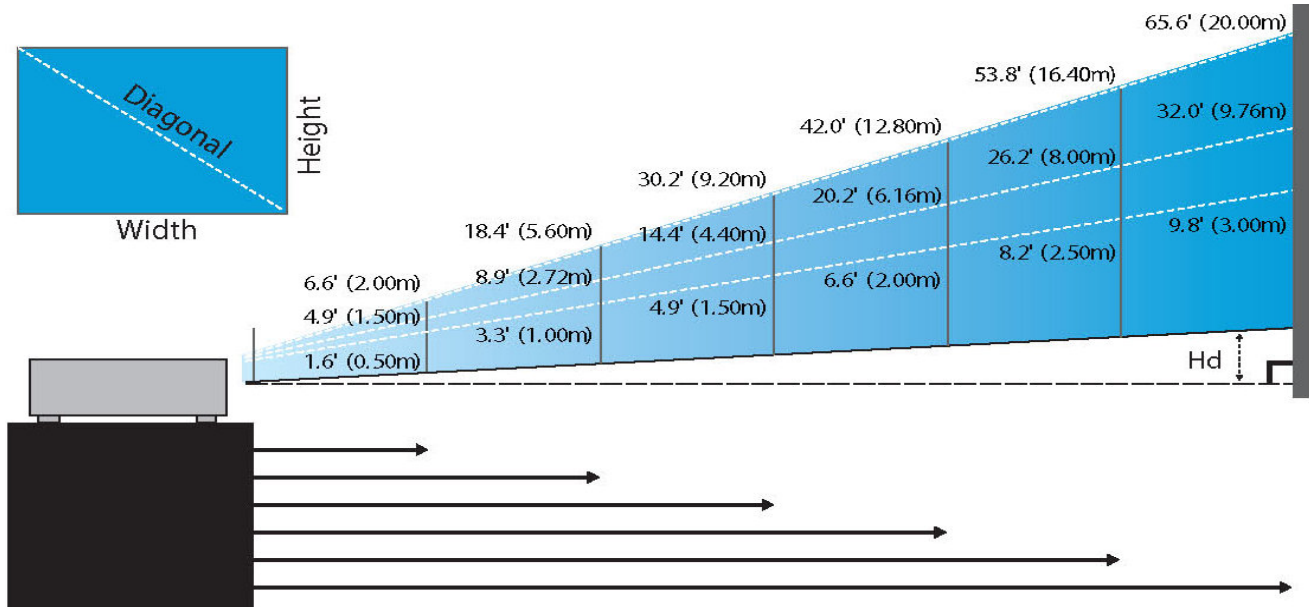
## 2-11. Pure Shift Range Diagram

### EW775 (WXGA)



### EX785 (XGA)



**2-12.****Adjusting Projection Image Size****EX785 (XGA)****STD lens: offset=100%**

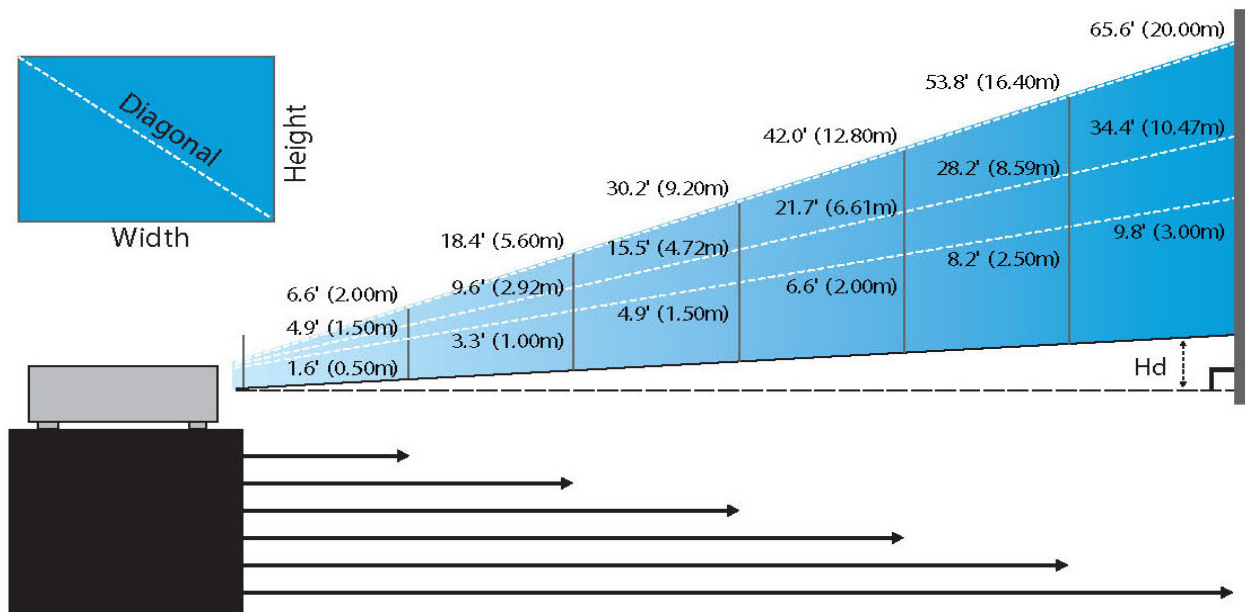
Screen (Diagonal)	Max.	46.1" (117.2cm)	83.7" (212.5cm)	135.3" (343.8cm)	189.5" (481.3cm)	246.1" (625.0cm)	300.2" (762.5cm)
	Min.	36.9" (93.8cm)	66.9" (170.0cm)	108.3" (275.0cm)	151.6" (385.0cm)	196.9" (500.0cm)	240.2" (610.0cm)
Screen size	Max (W×H).	36.9"×27.7" 93.8×70.3cm	66.9"×50.2" 170.0×127.5cm	108.3"×81.2" 275.0×206.3cm	151.6"×113.7" 385.0×288.8cm	196.9"×147.6" 500.0×375.0cm	240.2"×180.1" 610.0×457.5cm
	Min. (W×H)	29.5"×22.1" 75.0×56.3cm	53.5"×40.2" 136.0×102.0cm	86.6"×65.0" 220.0×165.0cm	121.3"×90.9" 308.0×231.0cm	157.5"×118.1" 400.0×300.0cm	192.1"×144.1" 488.0×366.0cm
Distance		4.9' (1.50m)	8.9' (2.72m)	14.4' (4.40m)	20.2' (6.16m)	26.2' (8.00m)	32.0' (9.76m)

**Long lens: offset=100%**

Screen (Diagonal)	Max.	49.2" (125.0cm)	137.8" (350.0cm)	226.4" (575.0cm)	315.0" (800.0cm)	408.5" (1025.0cm)	492.1" (1250.0cm)
	Min.	32.8" (83.3cm)	91.9" (233.3cm)	150.9" (383.3cm)	210.0" (533.3cm)	269.0" (683.3cm)	328.1" (833.3cm)
Screen size	Max (W×H).	39.4"×29.5" 100.0×75.0cm	110.2"×82.7" 280.0×210.0cm	181.1"×135.8" 460.0×345.0cm	252.0"×189.0" 640.0×480.0cm	322.8"×242.1" 820.0×615.0cm	393.7"×295.3" 1000.0×750.0cm
	Min. (W×H)	26.2"×19.7" 66.7×50.0cm	73.5"×55.1" 186.7×140.0cm	120.7"×90.6" 306.7×230.0cm	168.0"×126.0" 426.7×320.0cm	215.2"×161.4" 546.7×410.0cm	262.5"×196.9" 666.7×500.0cm
Distance		6.6' (2.00m)	18.4' (5.60m)	30.2' (9.20m)	42.0' (12.80m)	53.8' (16.40m)	65.6' (20.00m)

**Short lens: offset=100%**

Screen (Diagonal)	30.8" (78.1cm)	61.5" (156.3cm)	92.3" (234.4cm)	123.0" (312.5cm)	153.8" (390.6cm)	184.5" (468.8cm)
Screen size	24.6"×18.5" 62.5×46.9cm	49.2"×36.9" 125.0×93.8cm	73.8"×55.4" 187.5×140.6cm	98.4"×73.8" 250.0×187.5cm	123.0"×92.3" 312.5×234.4cm	147.6"×110.7" 375.0×281.3cm
Distance	1.6' (0.50m)	3.3' (1.00m)	4.9' (1.50m)	6.6' (2.00m)	8.2' (2.50m)	9.8' (3.00m)

**Adjusting Projection Image Size****EW775 (WXGA)****STD lens: offset=100%**

Screen (Diagonal)	Max.	43.0" (109.2cm)	83.7" (212.6cm)	135.3" (343.6cm)	189.4" (481.2cm)	246.2" (625.3cm)	300.1" (762.1cm)
	Min.	34.3" (87.1cm)	66.8" (169.6cm)	107.9" (274.2cm)	151.2" (384.0cm)	196.5" (499.0cm)	239.5" (608.2cm)
Screen size	Max (W×H).	36.5"×22.8" 92.6×57.9cm	71.0"×44.4" 180.2×112.7cm	114.7"×71.7" 291.4×182.1cm	160.6"×100.4" 408.0×255.0cm	208.8"×130.5" 530.2×331.4cm	254.4"×159.0" 646.3×403.9cm
	Min. (W×H)	29.1"×18.2" 73.9×46.2cm	56.6"×35.4" 143.8×89.9cm	91.5"×57.2" 232.5×145.3cm	128.2"×80.1" 325.6×203.5cm	166.6"×104.1" 423.2×264.5cm	203.1"×126.9" 515.8×322.4cm
Hd	Max.	1.1" (2.9cm)	2.2" (5.6cm)	3.6" (9.1cm)	5.0" (12.8cm)	6.5" (16.6cm)	8.0" (20.2cm)
	Min.	0.9" (2.3cm)	1.8" (4.5cm)	2.9" (7.3cm)	4.0" (10.2cm)	5.2" (13.2cm)	6.3" (16.1cm)
Distance		4.9' (1.50m)	9.6' (2.92m)	15.5' (4.72m)	21.7' (6.61m)	28.2' (8.59m)	34.4' (10.47m)



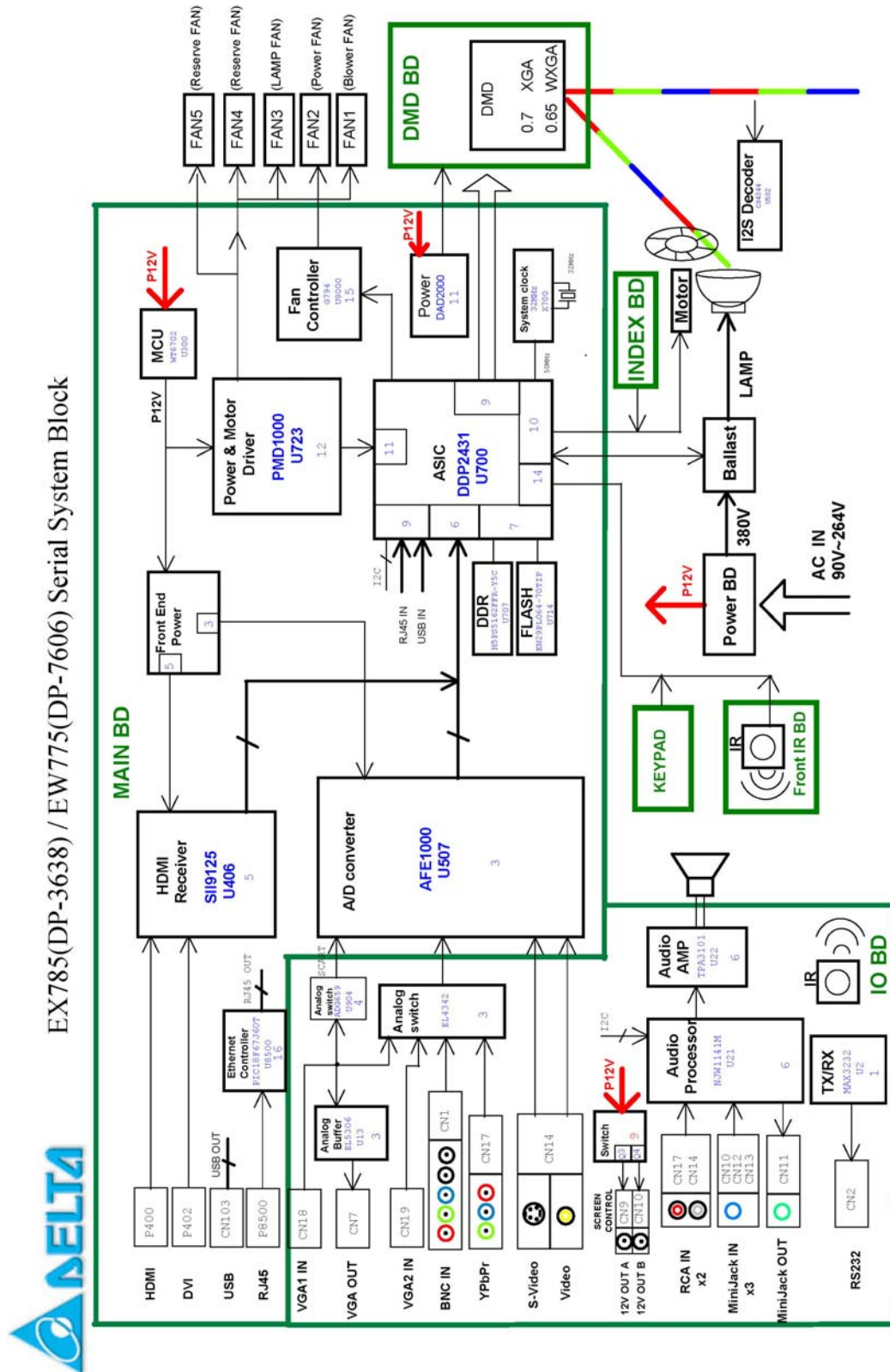
**Long lens: offset=100%**

Screen (Diagonal)	Max.	45.7" (116.2cm)	128.1" (325.3cm)	210.4" (534.4cm)	292.7" (743.6cm)	375.1" (952.7cm)	457.4" (1161.8cm)
	Min.	30.4" (77.3cm)	85.2" (216.5cm)	140.0" (355.7cm)	194.8" (494.9cm)	249.6" (634.1cm)	304.4" (773.3cm)
Screen size	Max (W×H).	38.8"×24.2" 98.5×61.6cm	108.6"×67.9" 275.9×172.4cm	178.4"×111.5" 453.2×283.3cm	248.2"×155.2" 630.5×394.1cm	318.1"×198.8" 807.9×504.9cm	387.9"×242.4"×98 5.2×615.8cm
	Min. (W×H)	25.8"×16.1" 65.6×41.0cm	72.3"×45.2" 183.6×114.8cm	118.8"×74.2" 301.6×188.5cm	165.2"×103.3" 419.7×262.3cm	211.7"×132.3" 537.7×336.1cm	258.2"×161.4"×65 5.7×409.8cm
Hd	Max.	1.2" (3.1cm)	3.4" (8.6cm)	5.6" (14.2cm)	7.8" (19.7cm)	9.9" (25.2cm)	12.1" (30.8cm)
	Min.	0.8" (2.0cm)	2.3" (5.7cm)	3.7" (9.4cm)	5.2" (13.1cm)	6.6" (16.8cm)	8.1" (20.5cm)
Distance		6.6' (2.00m)	18.4' (5.60m)	30.2' (9.20m)	42.0' (12.80m)	53.8' (16.40m)	65.6' (20.00m)

**Short lens: offset=100%**

Screen (Diagonal)	28.7" (72.8cm)	57.3" (145.6cm)	86.0" (218.4cm)	114.6" (291.2cm)	143.3" (364.0cm)	172.0" (436.8cm)
Screen size	24.3"×15.2" 61.7×38.6cm	48.6"×30.4" 123.5×77.2cm	72.9"×45.6" 185.2×115.7cm	97.2"×60.8" 246.9×154.3cm	121.5"×75.9" 308.6×192.9cm	145.8"×91.1" 370.4×231.5cm
Hd	0.8" (1.9cm)	1.5" (3.9cm)	2.3" (5.8cm)	3.0" (7.7cm)	3.8" (9.6cm)	4.6" (11.6cm)
Distance	1.6' (0.50m)	3.3' (1.00m)	4.9' (1.50m)	6.6' (2.00m)	8.2' (2.50m)	9.8' (3.00m)

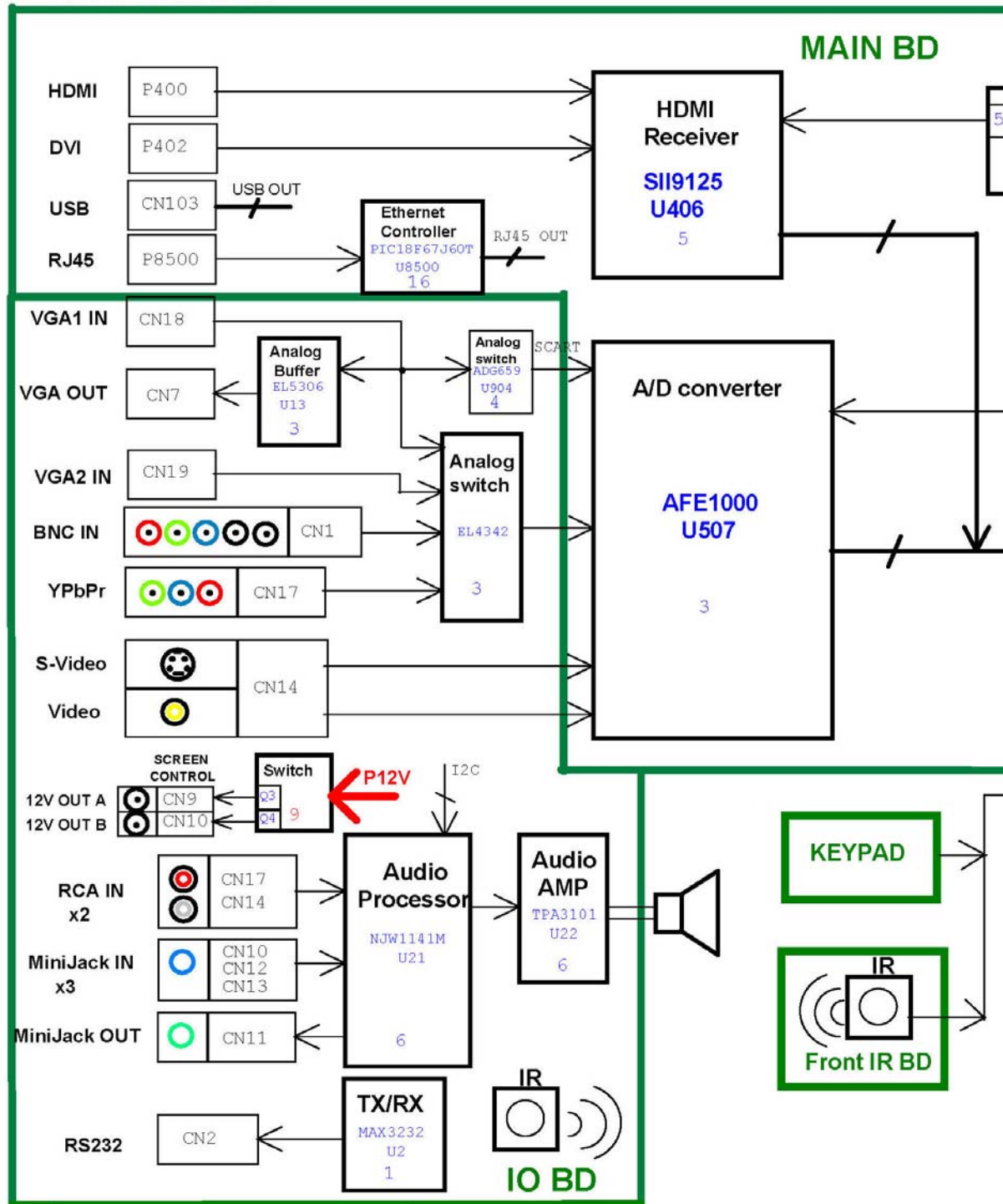
## 2-13. Block Diagram (Main Block)

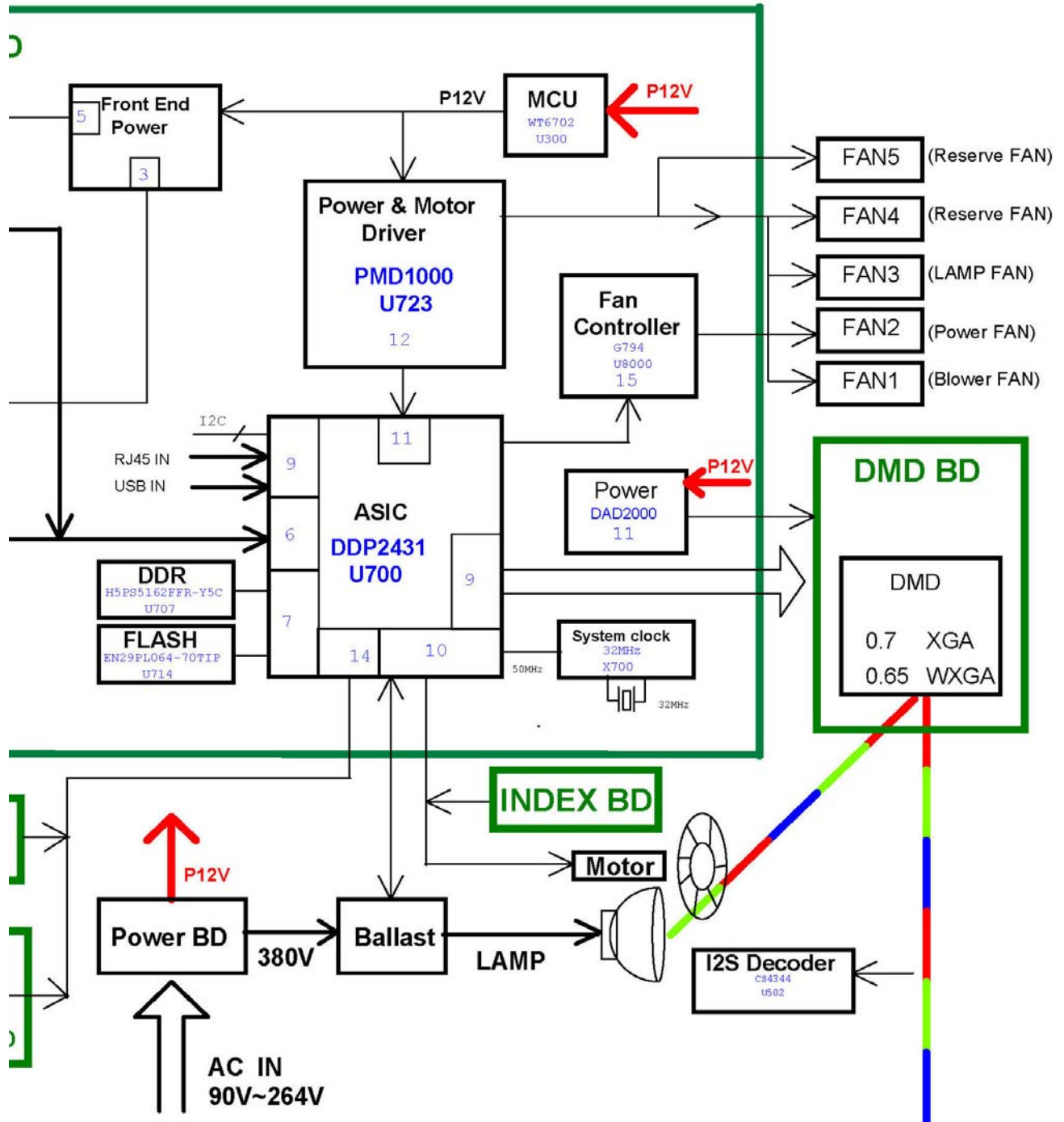




**Block Diagram (Left Block)**

EX785(DP-3638) / EW775(DP-7



**Block Diagram (Right Block)****DP-7606) Serial System Block**

## 2-14. Explanation of Block Diagram

### **Input signal processing**

**RGB(1,2) & Component & VIDEO and S-VIDEO .**

The RGB(D-sub15x2 or 5BNC) and COMPONENT input signals are switching output to ADC front end(AFE1000) by EL4342. After these signals and VIDEO, S-VIDEO have been converted into 10-bit digital signals of RGB/YUV each at the A/D converter (U507) , the resultant signals are output to the scaler (U700).

### **Digital input system**

**DVI and HDMI**

The DVI and HDMI signals input to HDMI receiver (U507). The signals are further converted into 10-bit digital signals of RGB/YCbCr, and then output to the scaler (U700).

### **Output signals processing**

**RGB out(D-sub15 black) .**

The RGB output signals pass through fromVGA1 only by analog switching lcs (EL4342 and ADG659).

**DDP2431 Image processing**

- Auto-lock for Std, wide & black border
- Integrated 3D Video Decoder
- DynamicBlack™
- BrilliantColor™
- Dynamic & Anamorphic Scaling w/ Zoom
- 1D Keystone Correction
- Frame Rate Conversion
- Color Coordinate Adjustment
- White Color Temperature Adjustment
- Programmable Color Space Conversion
- Programmable Degamma & Splash
- Spatial-Temporal Multiplexing

### **Digital video signal processing**

#### **\*Scaler (U700)**

- The RGB/YCbCr signals are processed for picture quality improvement and matrix processing at the Scaler circuit.
- The output signals are switched over at the bus line after adjusting color space processing, auto-adjustment, Degamma etc, these signals are written in the DDRII DRAM(U707).
- The image signals called up from the DDRII DRAM, pass through the definition converter circuit, ON-screen display, error diffusion circuit for DLP, and output to the optical engine unit (DLP DMD board).

### **Timing signal processing**

Scaler operates on an external single 32MHz crystal.

### **Audio signal processing**

- The pre-amplifier (U21) is generated signals with volume control to audio amplifier(U22) to driver speakers.

### **System control**

The scaler(U700) controls all of this system.

- Built-in Lamp Ballast Control
- DMD Power and Reset Driver Control
- DMD horizontal and vertical Image Flip

### **Power circuit**

#### **\* Main power supply**

- In the state of standby, the power is supplied 3.3V to the MCU(U300).
- After power ON, the 1.2V, 1.8V, 2.5V, 3.3V, 5V and 12V are provided to the analog circuit, fan, IO board, etc.

**\* Lamp power supply**

- The lamp is lit with POWER ON.
- Un-lighting detection is performed.

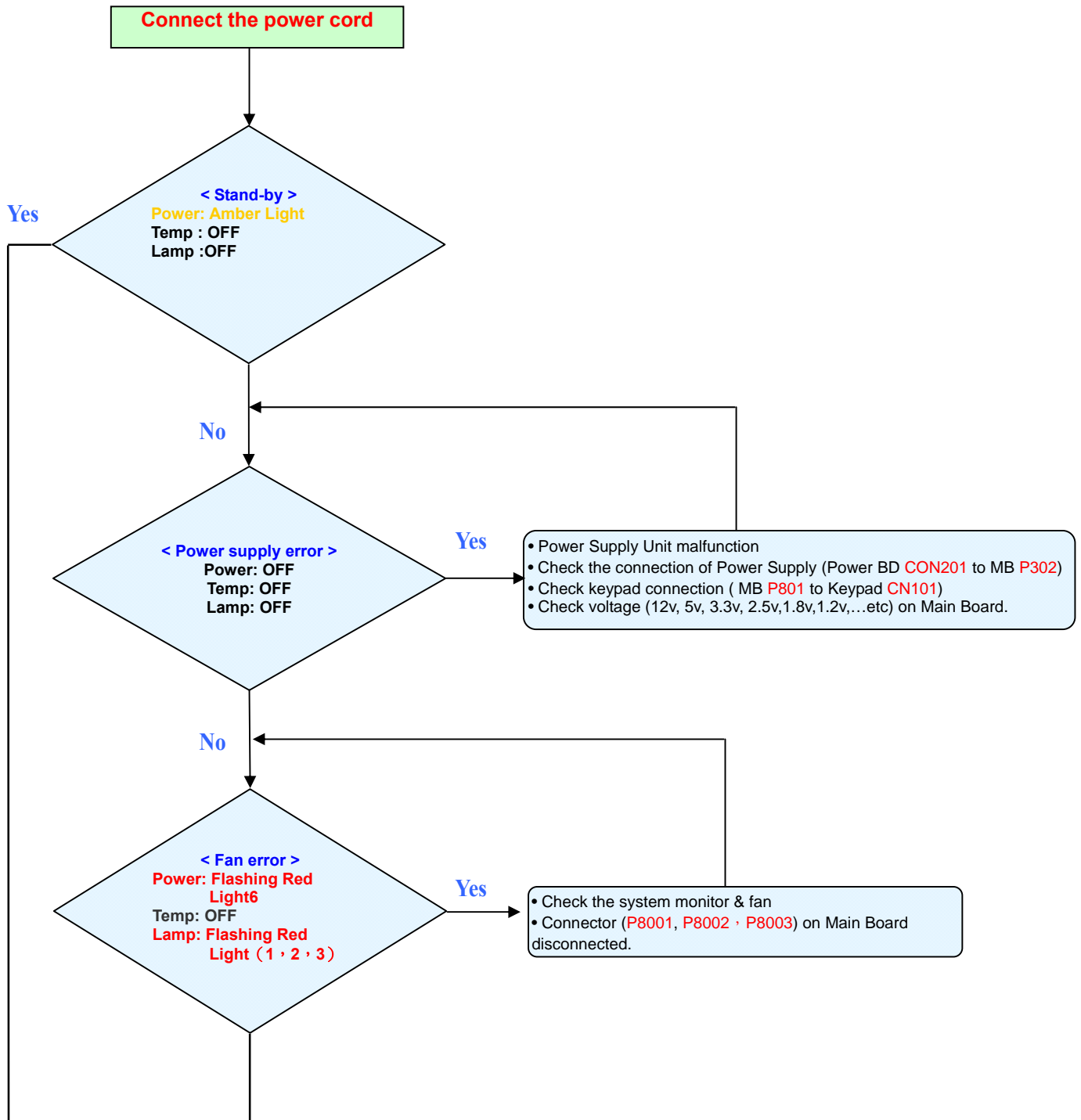
**Safety design**

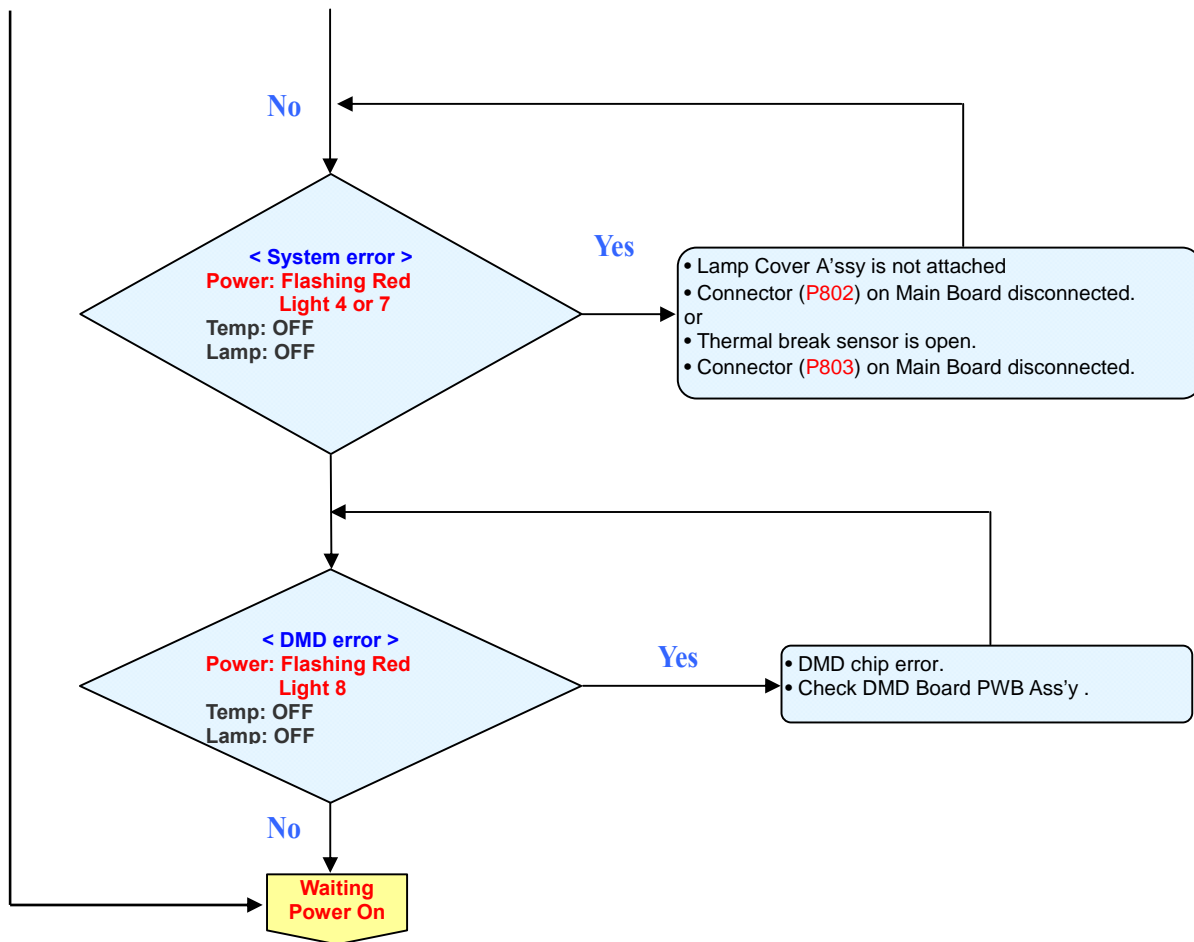
- Fan circuit detection
- Lamp cover detection
- Lamp house temperature detection
- Thermal protector for the lamp power supply
- Lamp replacing time

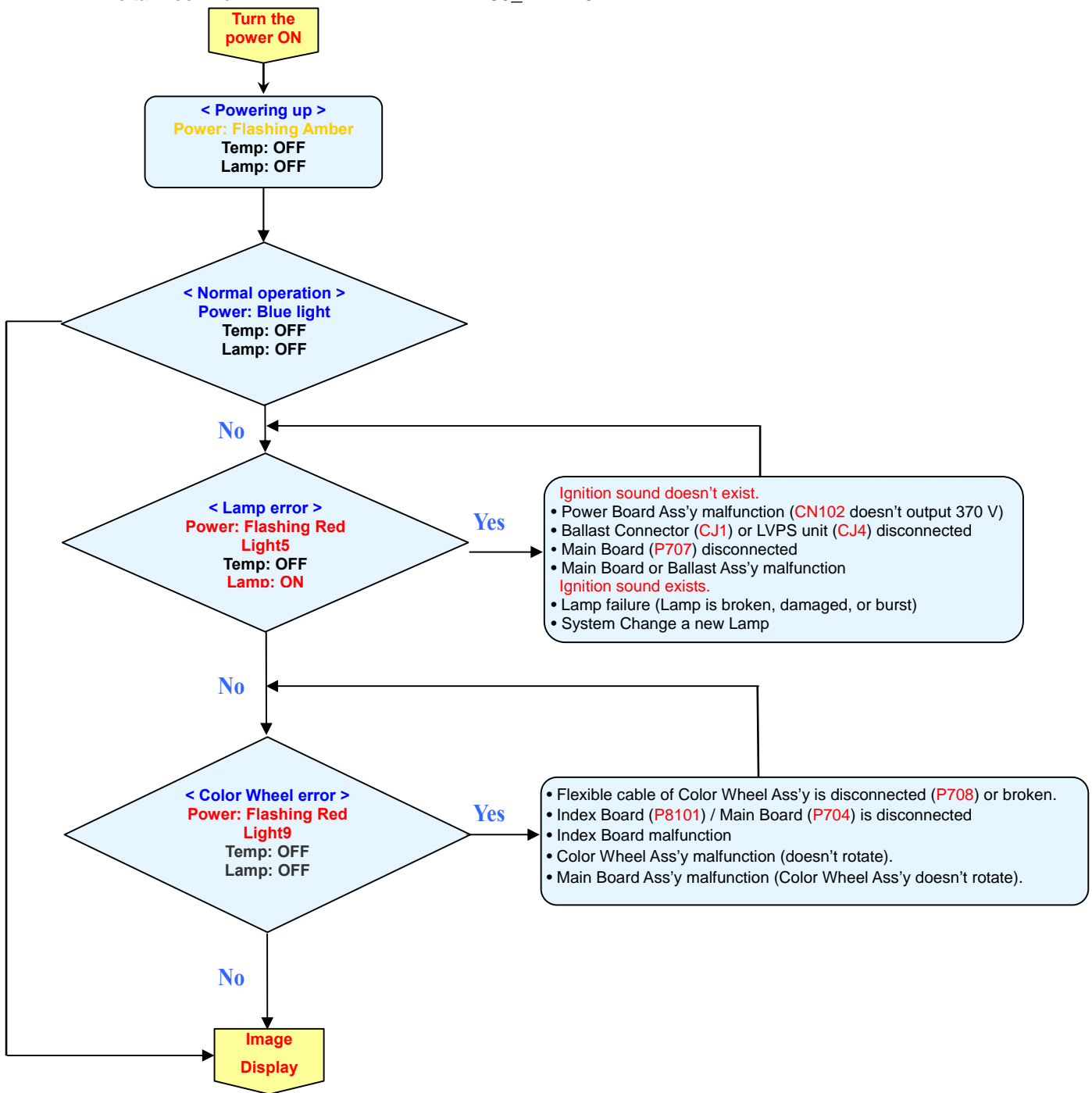
### 3. TROUBLE SHOOTING

By checking operations during normal usage time, it is possible to carry out judgments on malfunction to a certain extent.

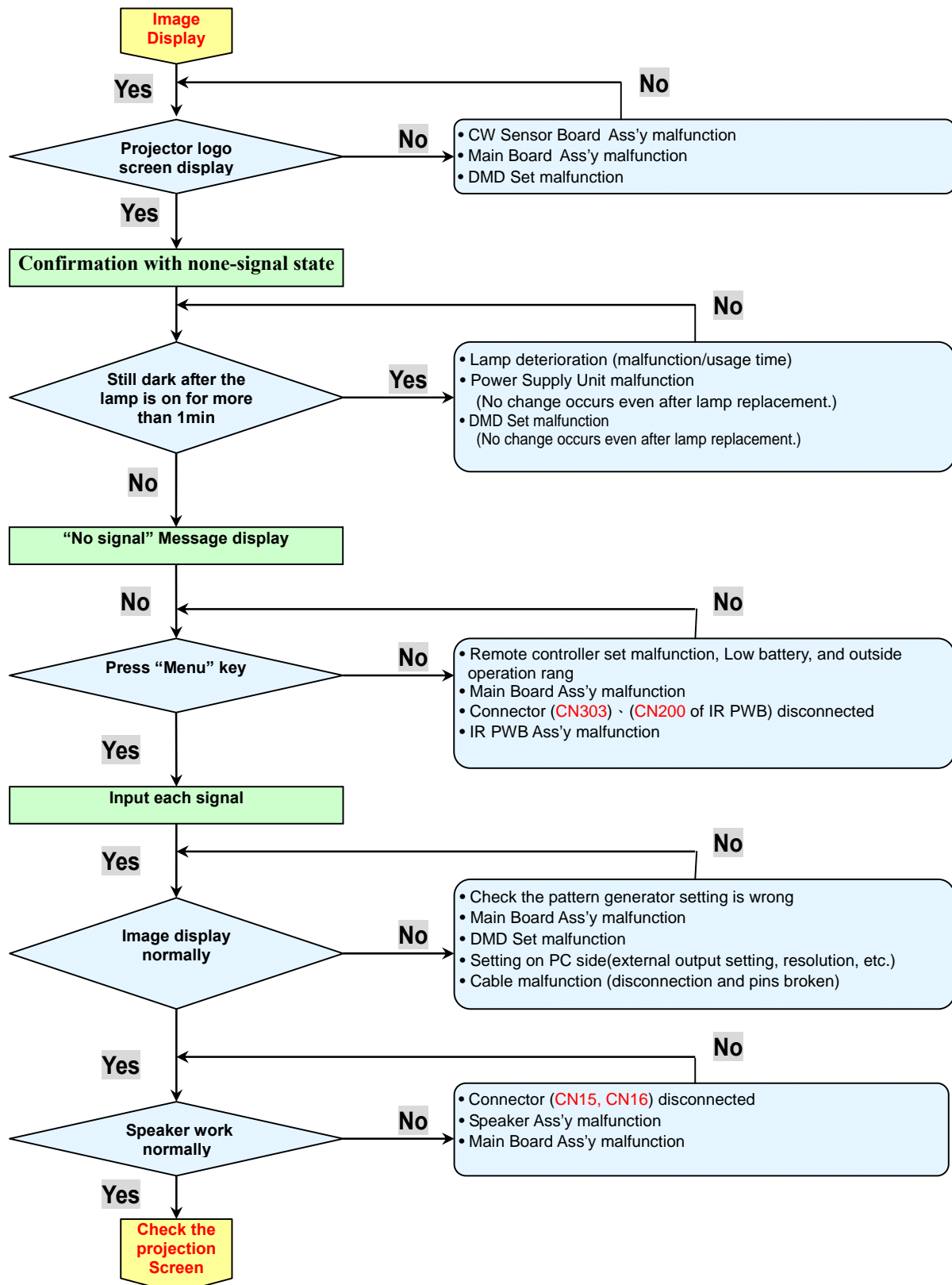
Carry out the following checks before disassembling the equipment.

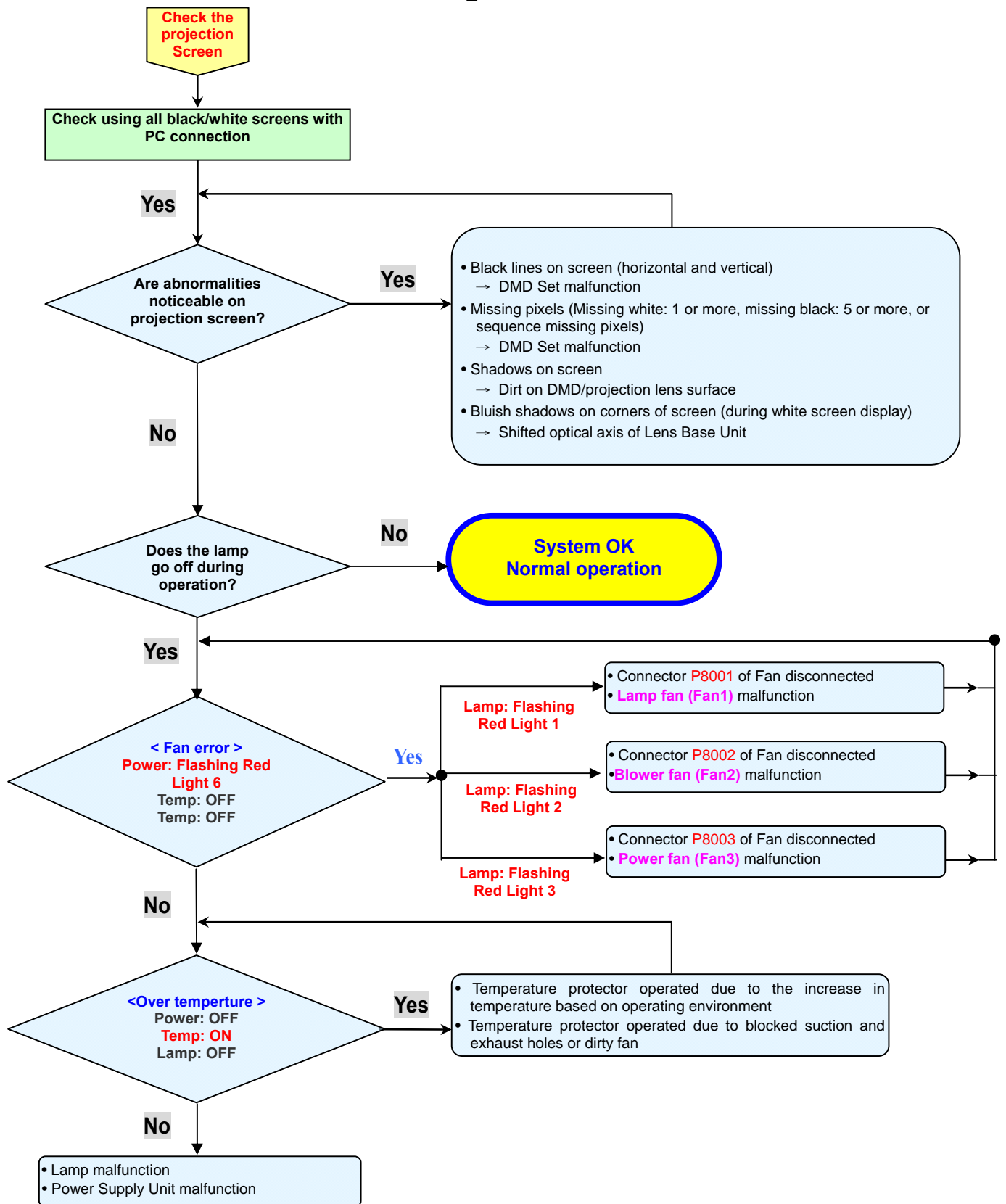












## Common problems and solutions

These guidelines provide tips to deal with problems you may encounter while using the projector. If the problem remains unsolved, contact your dealer for assistance.

Often after time spent troubleshooting, the problem is traced to something as simple as a loose connection.

Check the following before proceeding to the problem-specific solutions.

- *Use some other electrical device to confirm that the electrical outlet is working.*
- *Ensure the projector is turned on.*
- *Ensure all connections are securely attached.*
- *Ensure the attached device is turned on.*
- *Ensure a connected PC is not in suspending mode.*

Ensure a connected notebook computer is configured for an external display. (This is usually done by pressing an Fn-key combination on the notebook.)

## Image Problems

### ***Problem: No image appears on the screen***

1. Verify the settings on your notebook or desktop PC.
2. Turn off all equipment and power up again in the correct order.

### ***Problem: The image is blurred***

1. Adjust the **Focus** on the projector.
2. Press the **Re-sync** button on the remote control or projector.
3. Ensure the projector-to-screen distance is within the 10-meter (33-feet) specified range.
4. Check that the projector lens is clean.

### ***Problem: The image is wider at the top or bottom (trapezoid effect)***

1. Position the projector so it is as perpendicular to the screen as possible.
2. Use the Keystone button on the remote control or projector to correct the problem.

### ***Problem: The image is reversed***

Check the **Projection** setting on the **Setup** menu of the OSD.

***Problem: The image is streaked***

1. Set the **Frequency** and **Phase** settings on the **Computer** menu of the OSD to the default settings.
2. To ensure the problem is not caused by a connected PC's video card, connect to another computer.

***Problem: The image is flat with no contrast***

Adjust the **Contrast** setting on the **Image** menu of the OSD.

***Problem: The color of the projected image does not match the source image.***

Adjust the **Color Temperature** and **Gamma** settings on the **Image** menu of the OSD.

## Lamp Problems

***Problem: There is no light from the projector***

1. Check that the power cable is securely connected.
2. Ensure the power source is good by testing with another electrical device.
3. Restart the projector in the correct order and check that the Power LED is still green.
4. If you have replaced the lamp recently, try resetting the lamp connections.
5. Replace the lamp module.
6. Put the old lamp back in the projector and have the projector serviced.

***Problem: The lamp goes off***

1. Power surges can cause the lamp to turn off. Re-plug power cord. When the Ready LED is on, press the power button.
2. Replace the lamp module.
3. Put the old lamp back in the projector and have the projector serviced.

## Remote Control Problems

***Problem: The projector does not respond to the remote control***

1. Direct the remote control towards remote sensor on the projector.
2. Ensure the path between remote and sensor is not obstructed.
3. Turn off any fluorescent lights in the room.
4. Check the battery polarity.
5. Replace the batteries.
6. Turn off other Infrared-enabled devices in the vicinity.
7. Have the remote control serviced.

## Audio Problems

***Problem: There is no sound***

1. Adjust the volume on the remote control.
2. Adjust the volume of the audio source.
3. Check the audio cable connection.
4. Test the source audio output with other speakers.
5. Have the projector serviced.

***Problem: The sound is distorted***

1. Check the audio cable connection.
2. Test the source audio output with other speakers.

## 4. DISASSEMBLY AND ASSEMBLY

### Review and Remove the Lens



Look the full set projector.



Look at the IO side.



Push the button and anti-clockwise.



Remove the Lens.

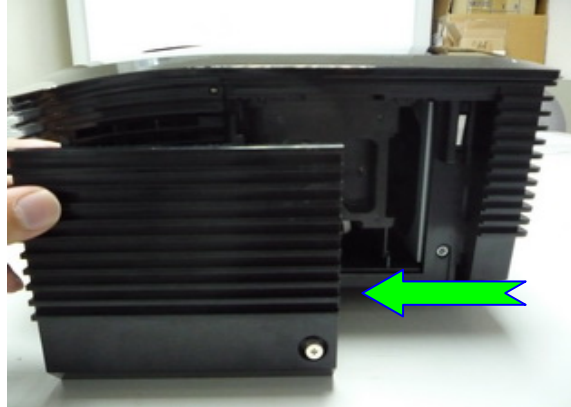


Look the Lens.

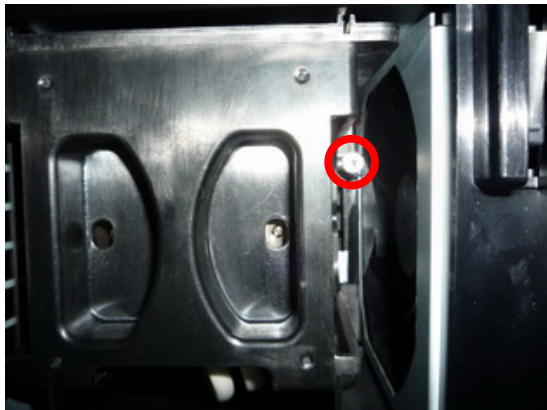
## Remove the Lamp Cover and Lamp Module



Remove the screws. (S01)



Remove the Lamp cover.



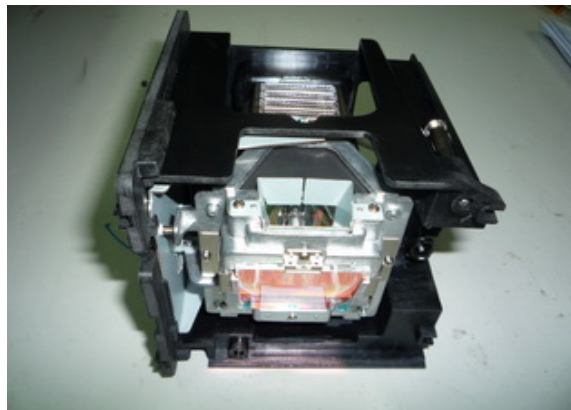
Loose the screw.



Loose the screw.



Remove the Lamp module.



Look the Lamp #1.



## Remove the Lamp Module and Filter

D  
I  
S  
A  
S  
S  
E  
M  
B  
L  
Y



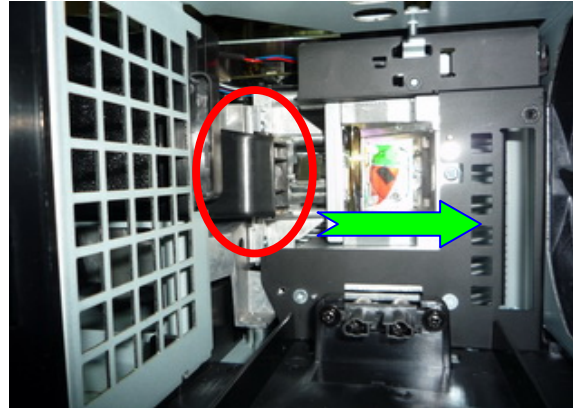
**Look the Lamp #2.**



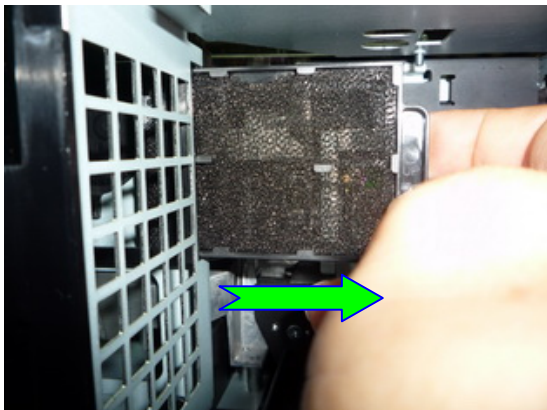
**Look the Lamp #3.**



**Look the Lamp #4.**



**Remove Lamp filter.**



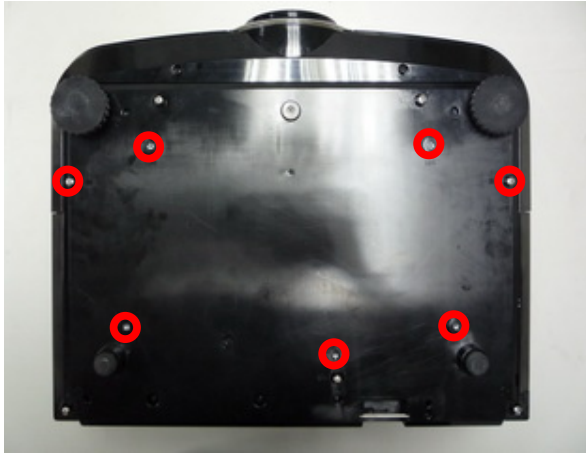
**Follow direction and Remove Lamp filter.**



**Look the Lamp filter.**



## Remove the Top Cover and Main Board shield



**Remove these seven long screws.**



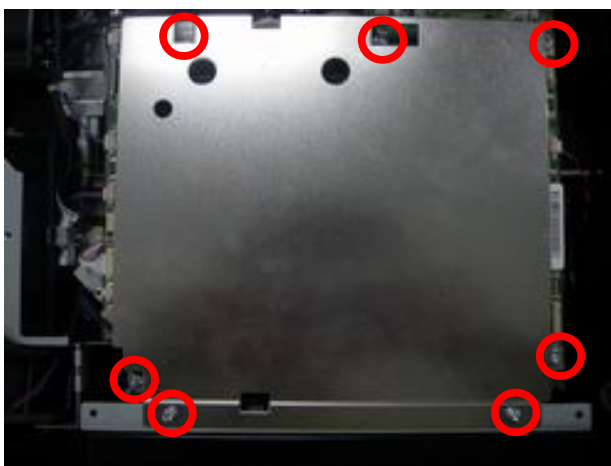
**Look these seven screws. (S02)**



**Take off the Top case.**



**Review the top area w/o top case.**



**Remove the seven screws.**

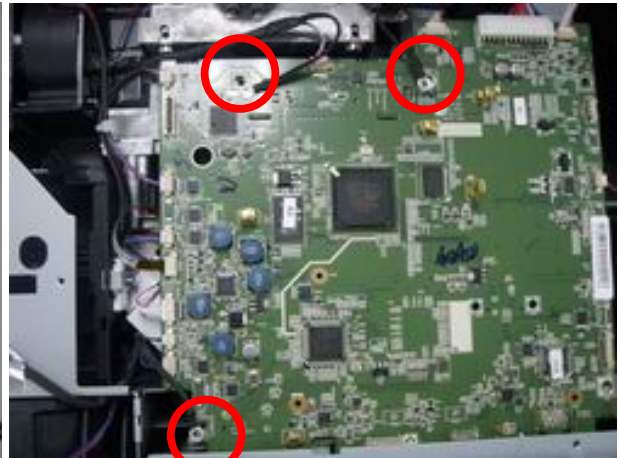


**Review the seven screws. (S03)**

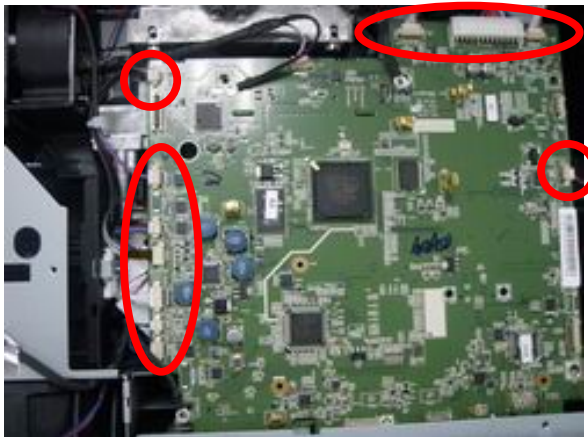
## Remove the Main Board



**Review the shield.**



**Careful these grounding wires then you assembled.**



**Careful these connectors when you assembled.**



**Remove the three screws.**



**Remove the screws. (S04) & (S05)**

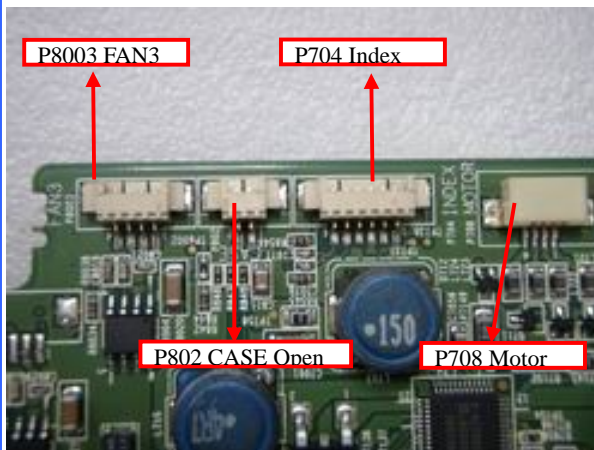
## Review the Main Board



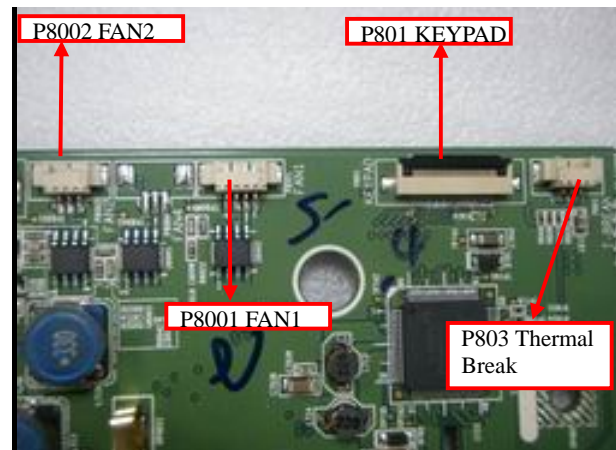
**Review the top area w/o main chassis.**



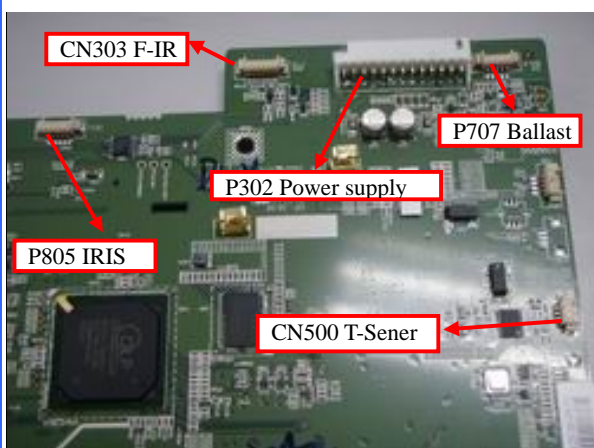
**Review the bottom area w/o main chassis.**



**Careful the connector locations when you assembled again.**



**Careful the connector locations when you assembled again.**



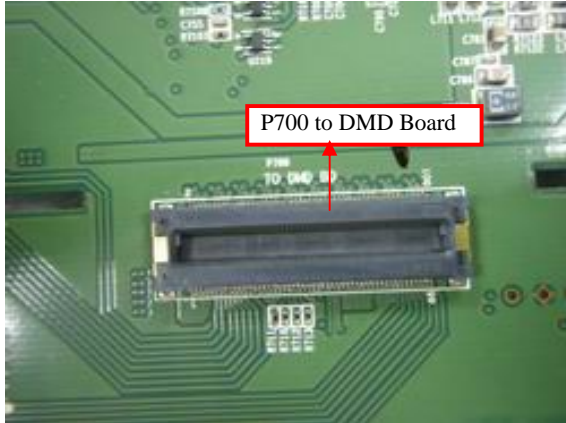
**Careful the connector locations when you assembled again.**



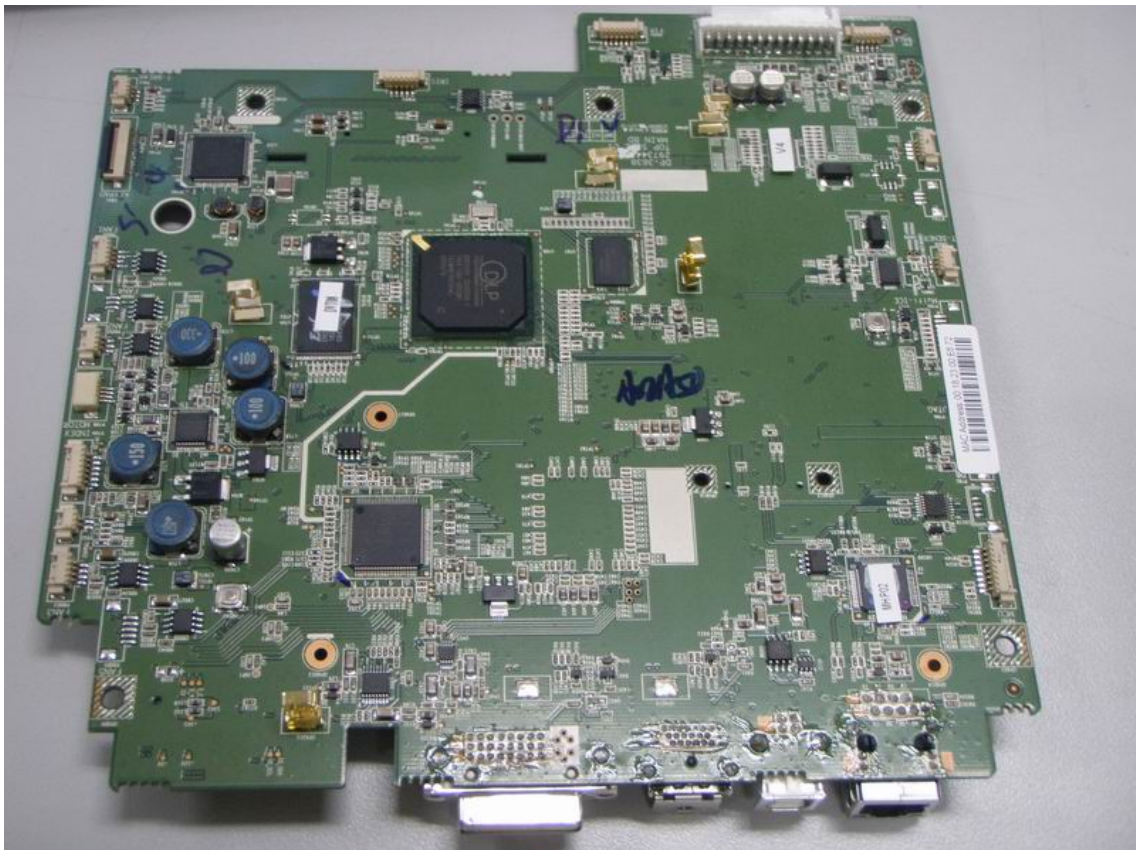
**Careful the connector locations when you assembled again.**



## Main Board Review

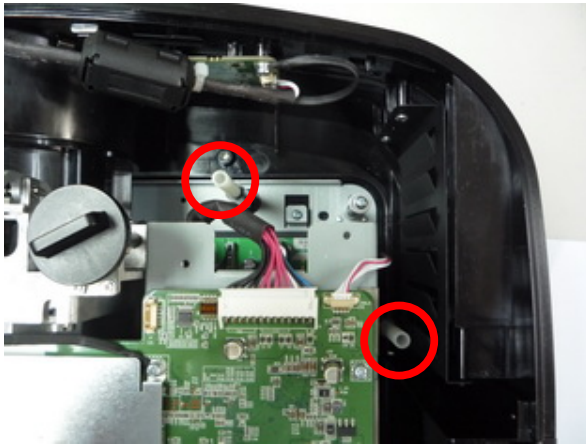


**Careful these connector locations  
when you assembled again.**

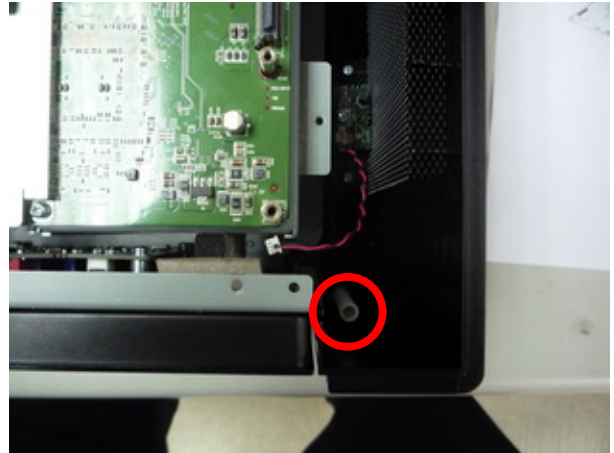


## Main Board Review

## Remove the White Tube



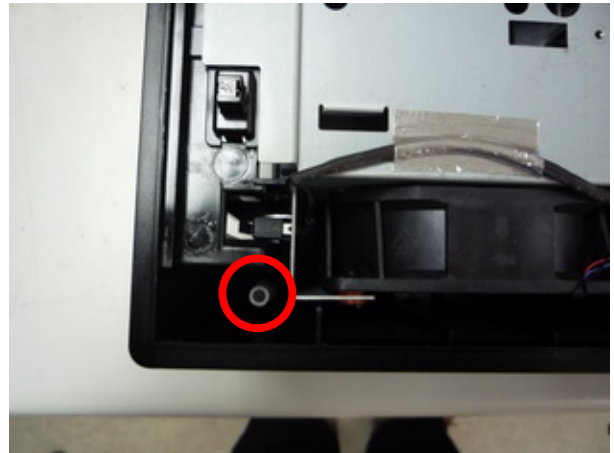
**Remove the white long tube #1.**



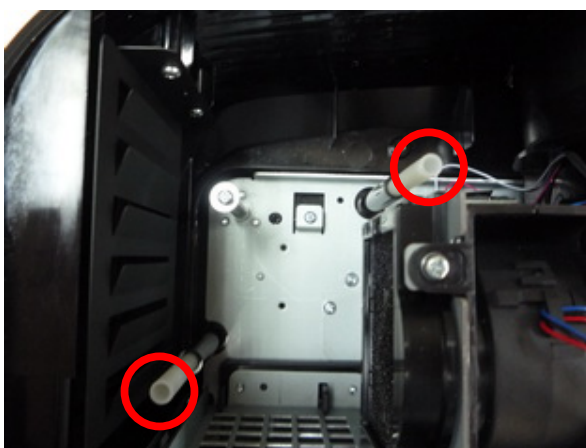
**Remove the white long tube #2.**



**Remove the white long tube #3.**



**Remove the white long tube #4.**



**Remove the white long tube #5.**



**Review the seven white long tubes.**

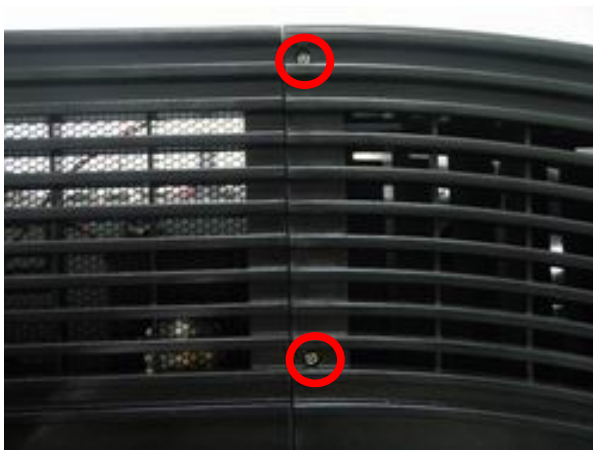
## Remove the Front Cover



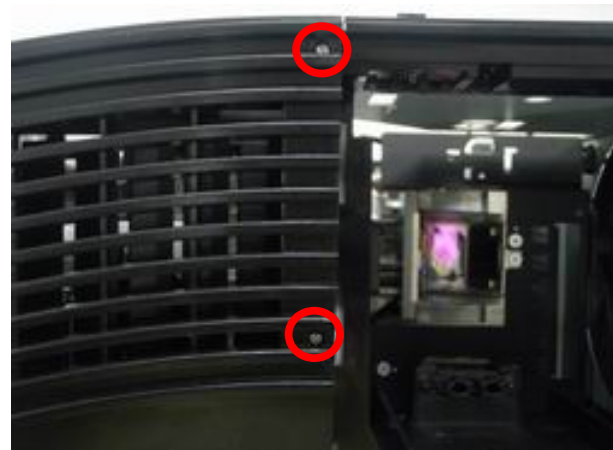
**Review the projector.**



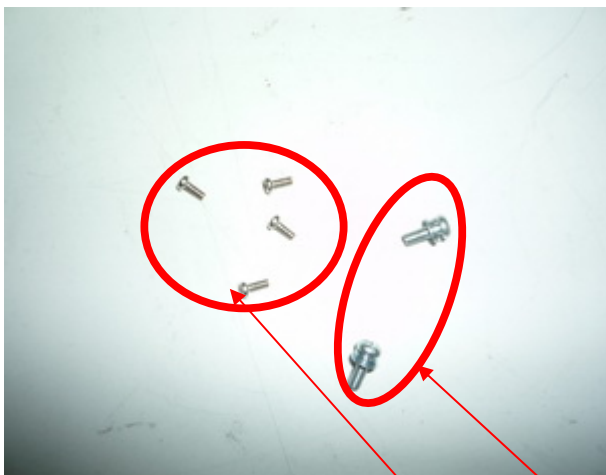
**Remove the two screws. (S03)**



**Remove the two screws.**



**Remove the two screws.**



**Review these 4+2 screws.(S06)&(S03)**



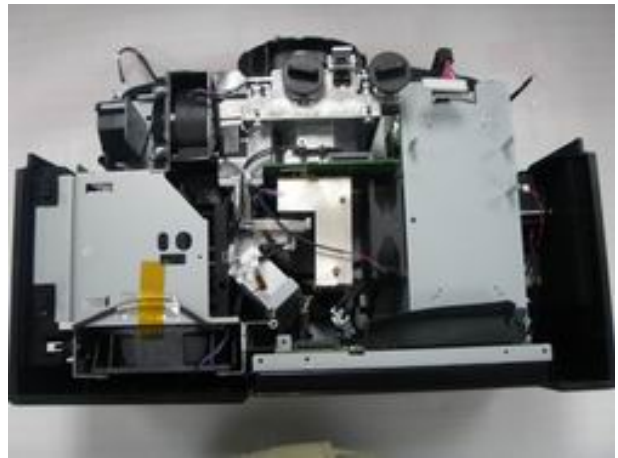
**Careful the position when you assembled.**



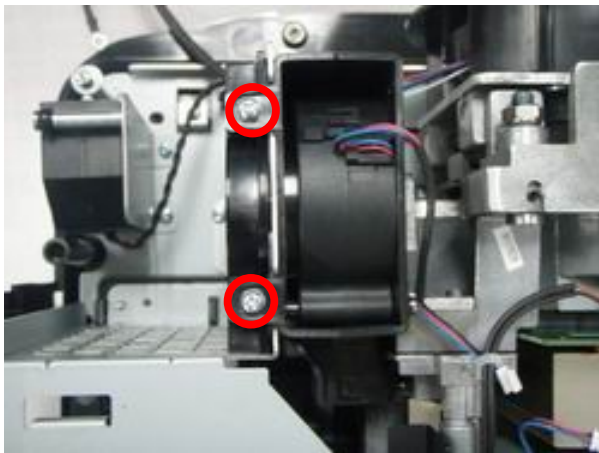
## Remove Optical FAN and Optical Engine



**Review the Front Cover.**



**Review the projector.**



**Remove these 2 screws.**



**Review the Fan and the two screws. (S03)**

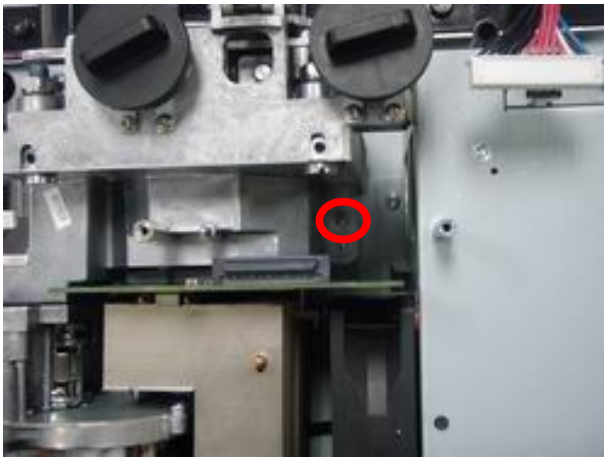


**Remove the screw and take out the Fan-Chassis.**

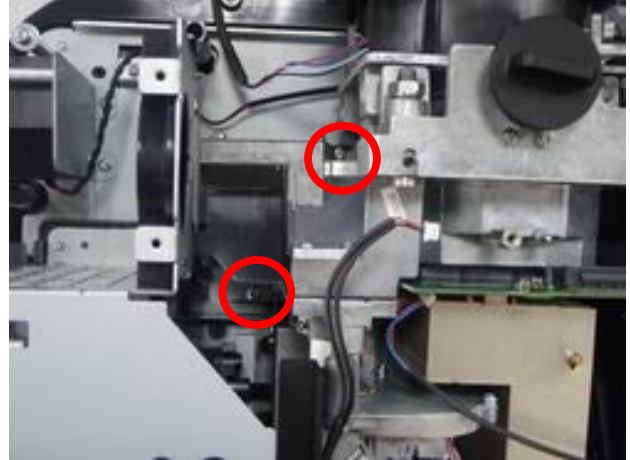


**Review the Fan-Chassis and the screw. (S03)**

## Remove the Optical Engine



**Remove the screw.**



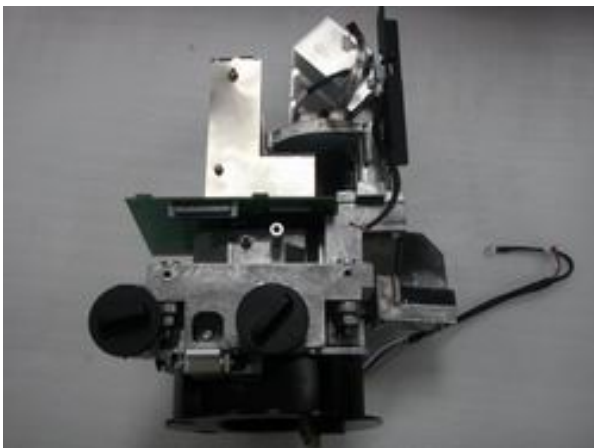
**Remove the two screws.**



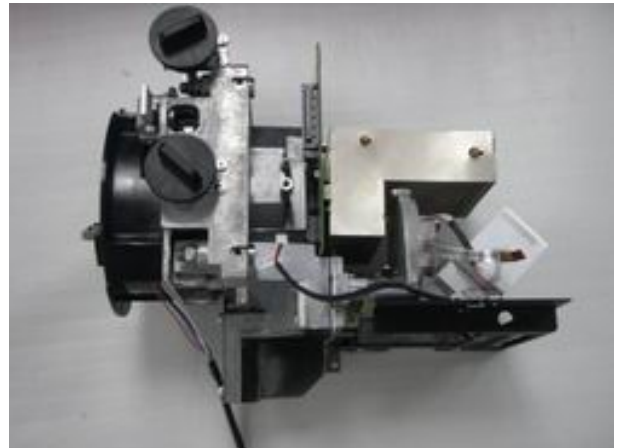
**Review the three screws. (S03)**



**Review the Optical Engine. #1**



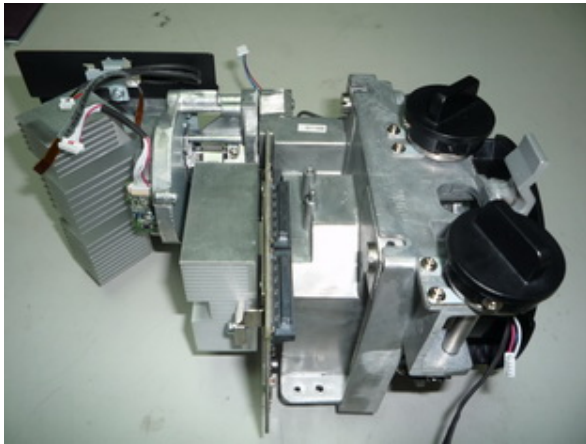
**Remove the screw (M3x8). #2**



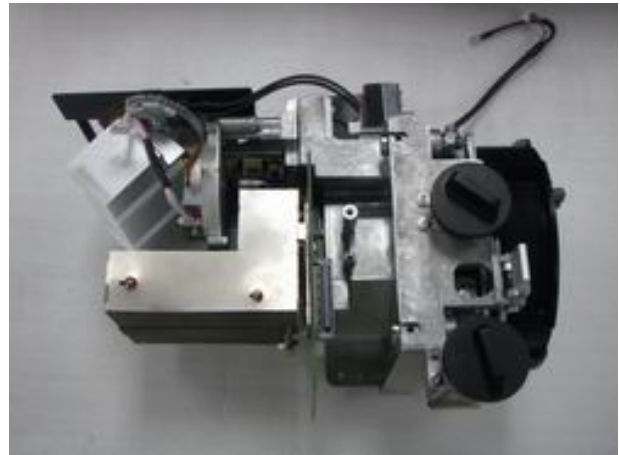
**Remove the screw (M3x8). #3**



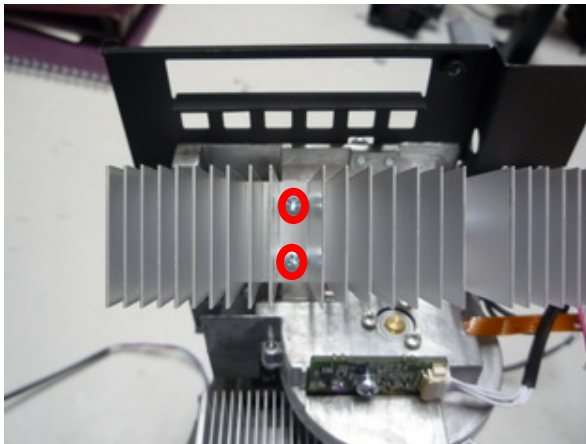
## Remove the Thermostat & Color Wheel



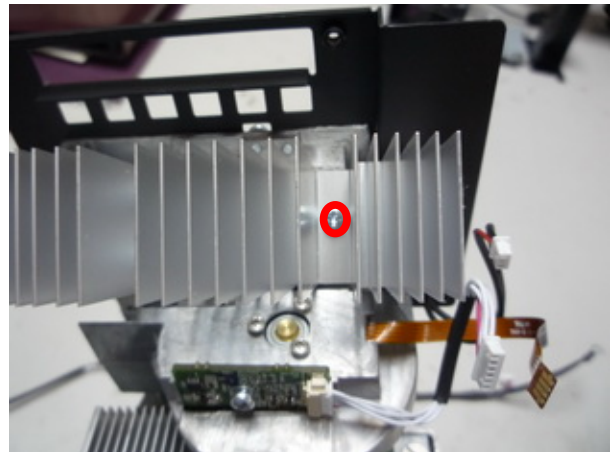
Look the optical engine #4.



Look the optical engine #5.



Remove these two screws. (S07)



Remove the screw. (S07)



Look the DMD chassis.

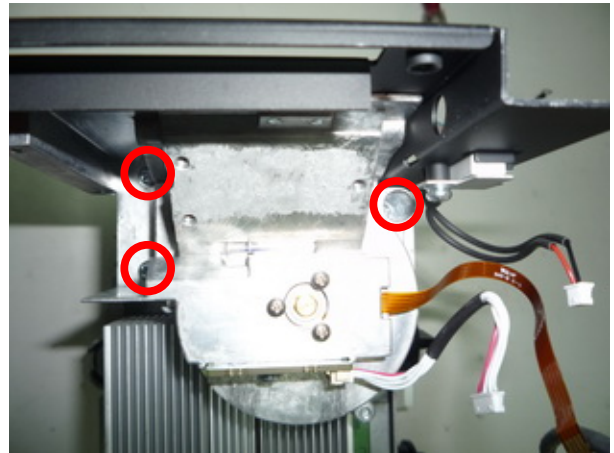


Remove the screw. (S03)

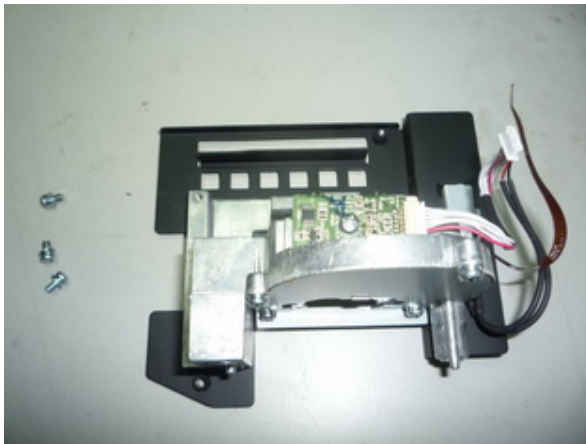
## Remove the Thermostat & C/W



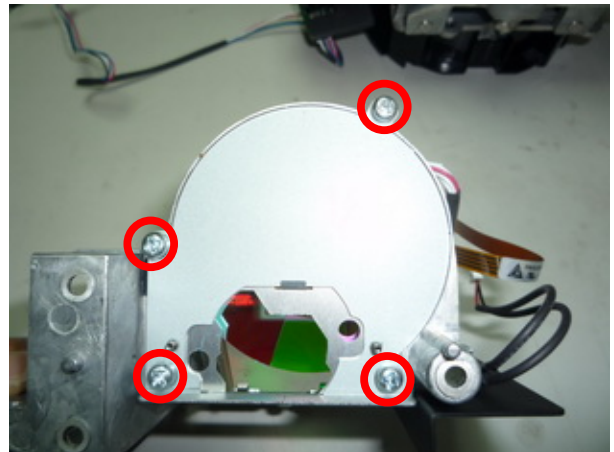
**Look the Thermostat.**



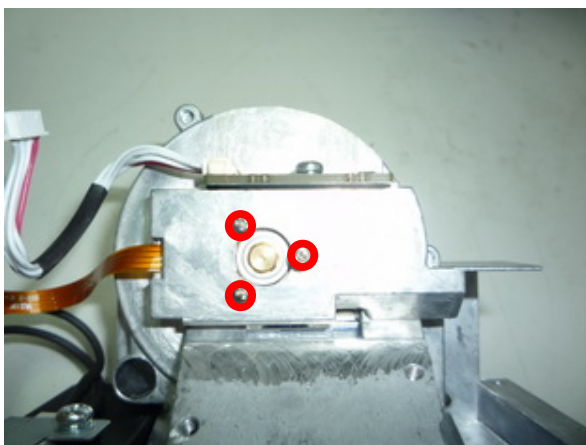
**Remove these 3 screws (S03).**



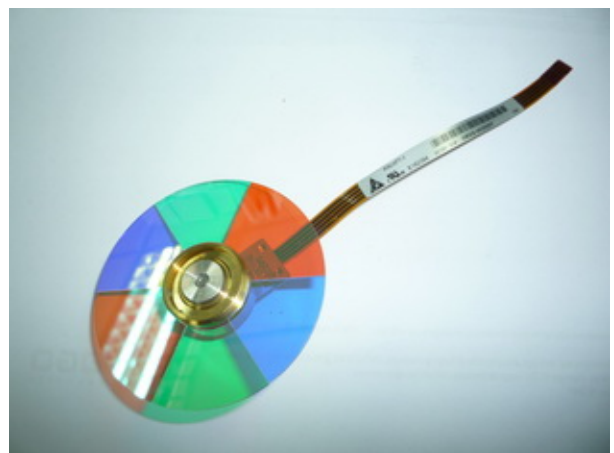
**Look C/W chassis.**



**Remove these 4 screws (S03).**

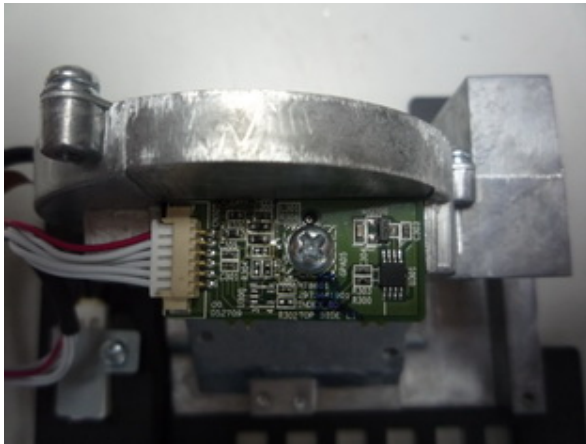


**Remove these 3 screws. (S08)**

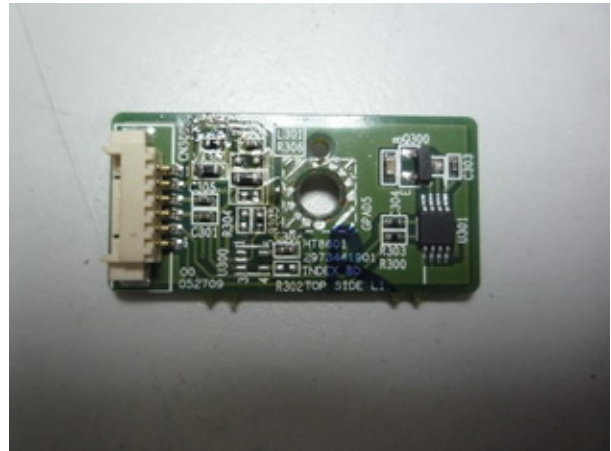


**Look at the C/W.**

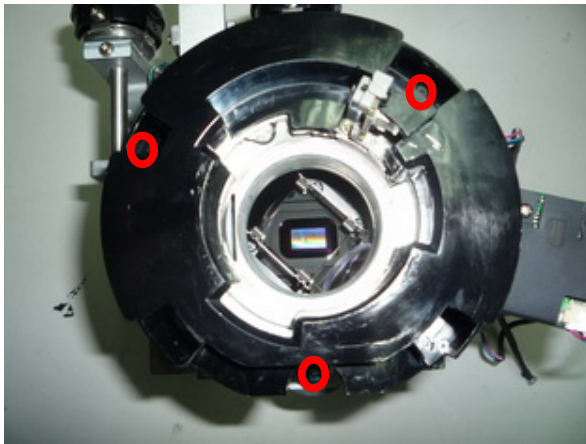
## Remove the Index Board and IRIS Board



Remove the screw. (S03)



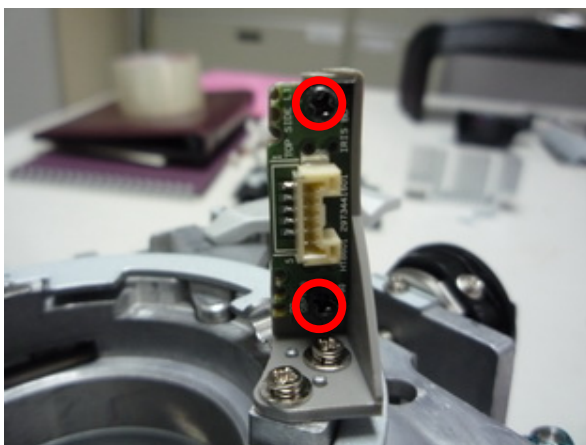
Look the Index Board.



Remove these 3 screws. (S09)



Look the Optical Ring.



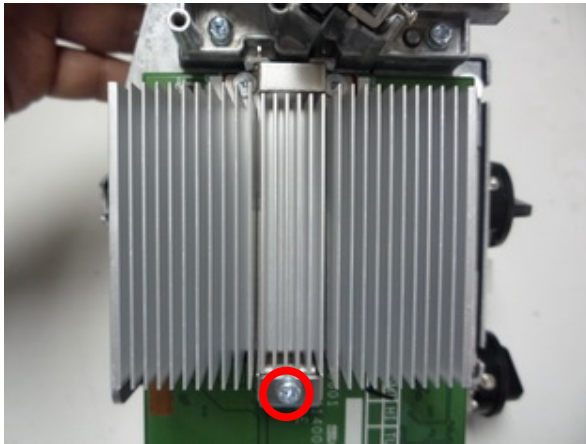
Remove these 2 screws. (S10)



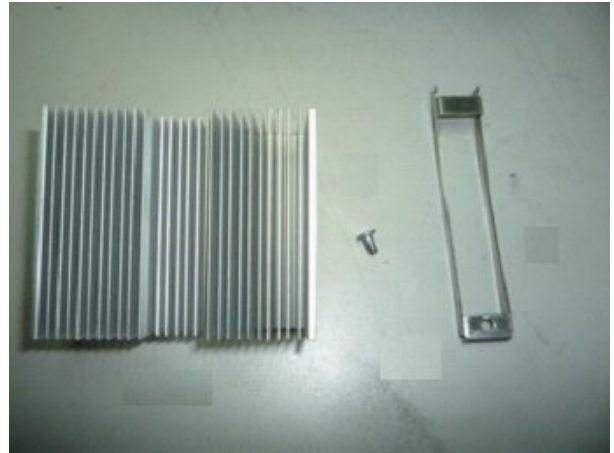
Look the IRIS Board.



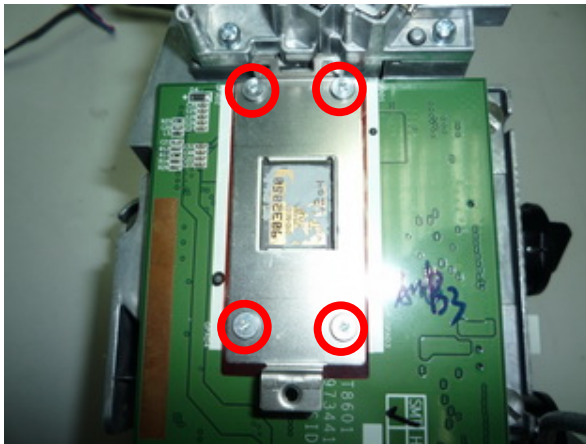
## Remove the DMD Chip



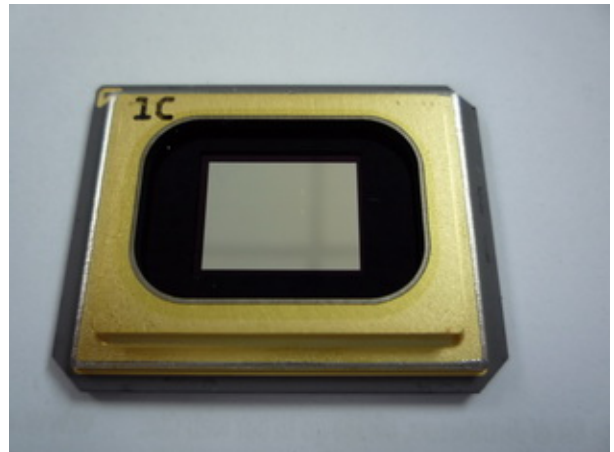
**Remove the screw. (S11)**



**Review the DMD Heat Sink.**

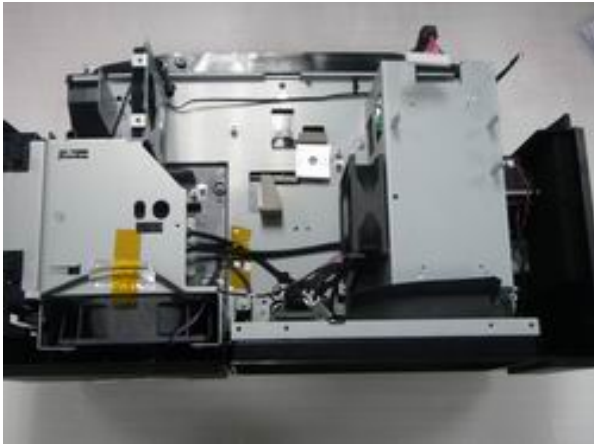


**Remove these 4 screws. (S11)**



**Look the DMD Chip.**

## Remove the IO ASSY



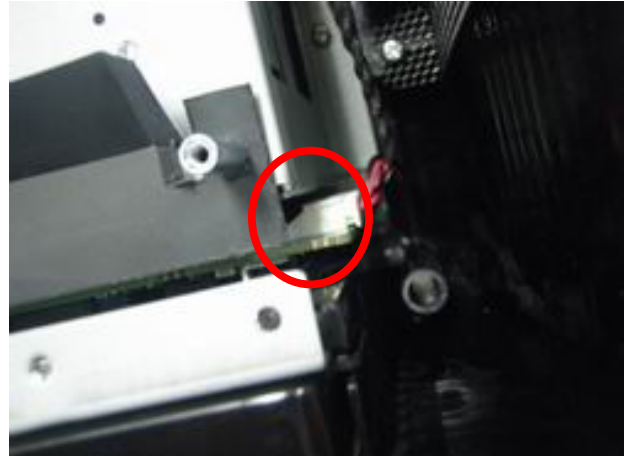
**Review the projector.**



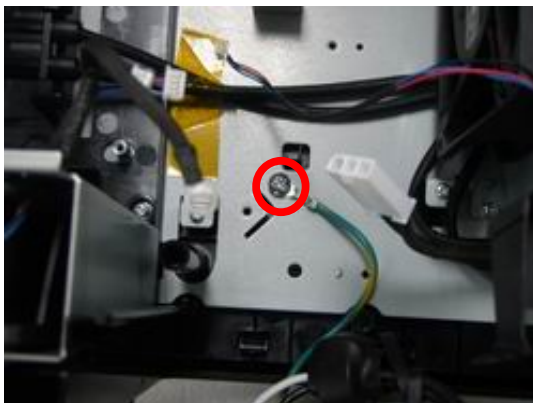
**Remove the three screws. (S03)**



**Be careful the connector when you assembled.**



**Be careful the connector when you assembled.**



**Remove the screw.**

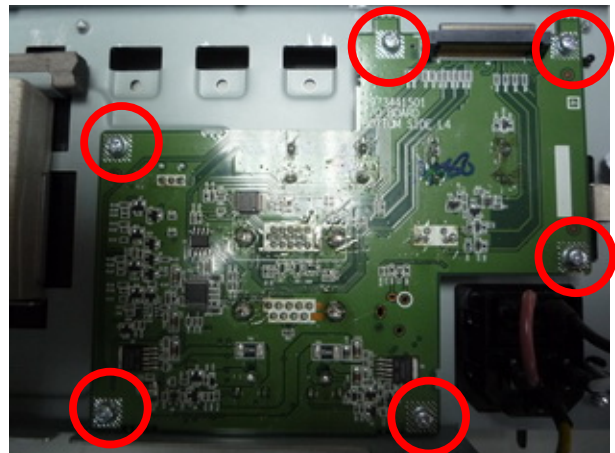


**Review the screw. (S12)**

## Remove the IO Board



Review the IO ASSY and remove the eight screws.



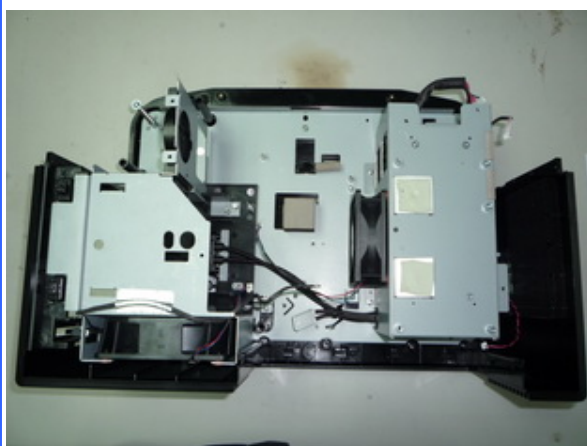
Remove the six screws.



Review the screws. (S04) & (S13)



Review the IO BOARD.



Look the bottom case w/o optical engine.



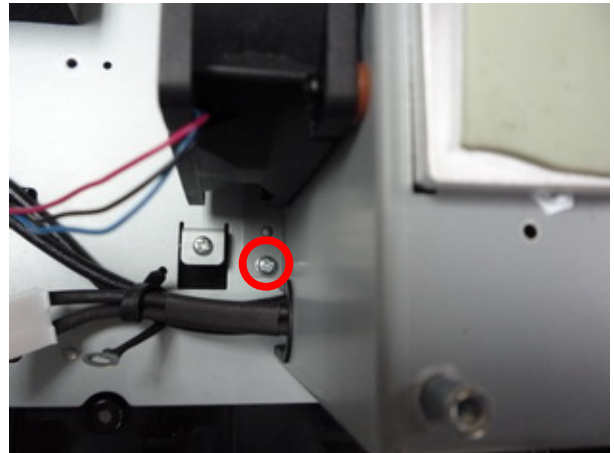
Remove the screw. (S03)



## Remove the Ballast and FAN



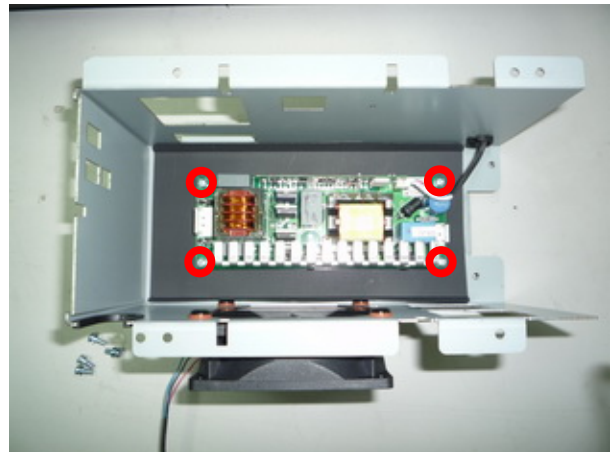
Remove the screw. (S03)



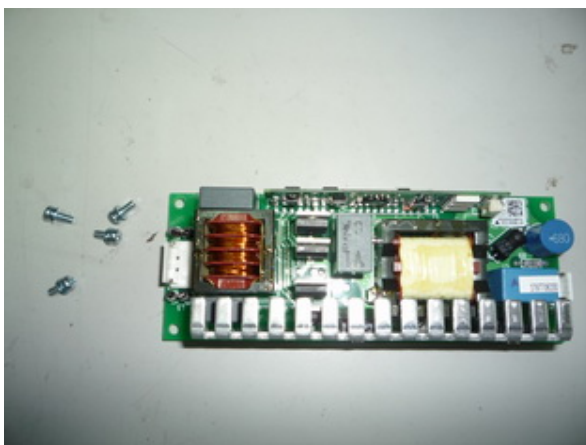
Remove the screw. (S03)



Remove the screw. (S03)



Remove these 4 screws. (S03)



Look the Ballast Board.



Look the Fan 2

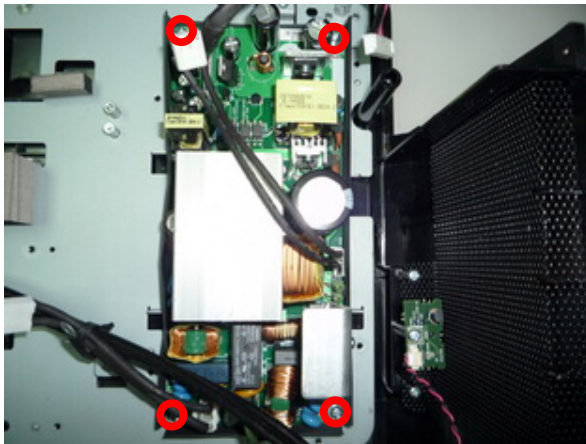
## Removing the Fan and Power Board



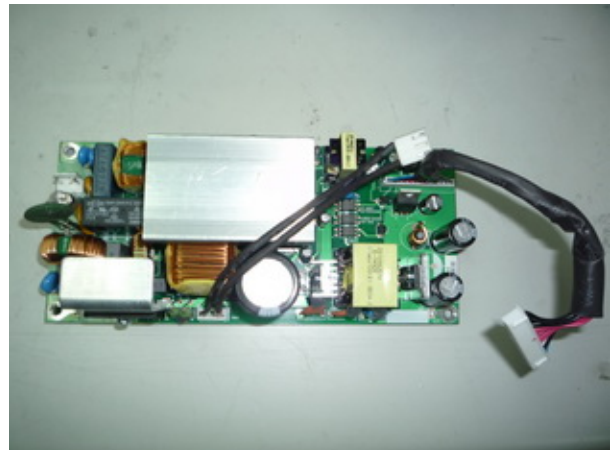
Take out off 4 black nuts.



Look the Fan 2



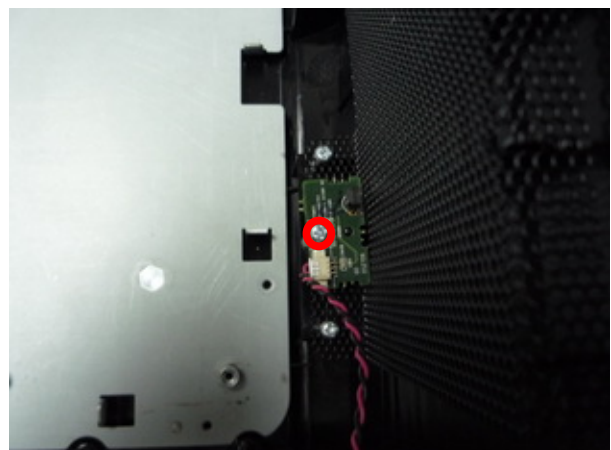
Remove these 4 screws. (S03)



Look the Power Board.



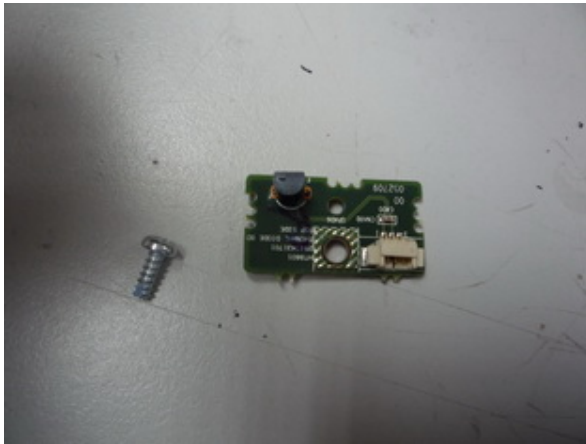
Look the bottom case w/o Power Board.



Remove the screw. (S14)



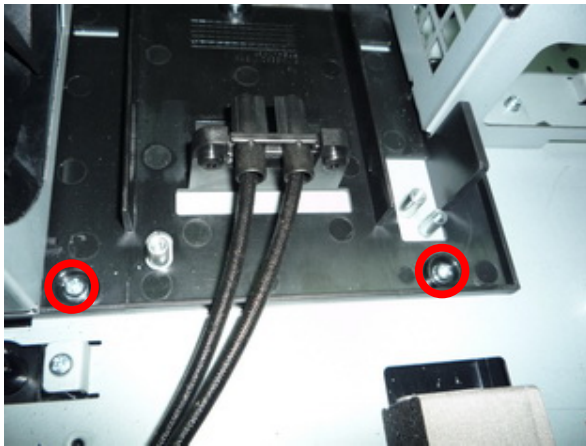
## Remove Thermal Board and Lamp Module Chassis



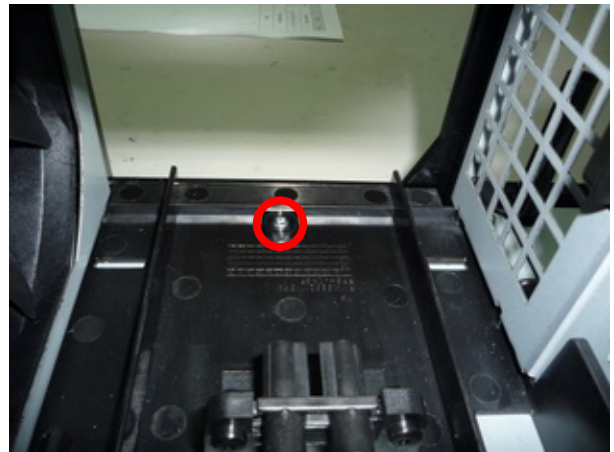
**Look the Thermal Board.**



**Look the Lamp Module Chassis and Fan3.**



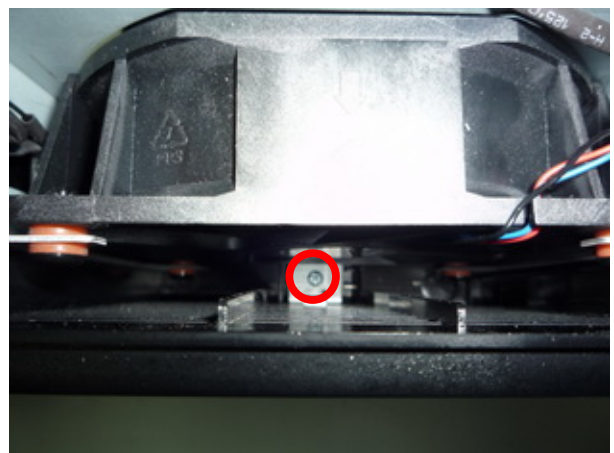
**Remove these 2 screws. (S03)**



**Remove the screw. (S03)**

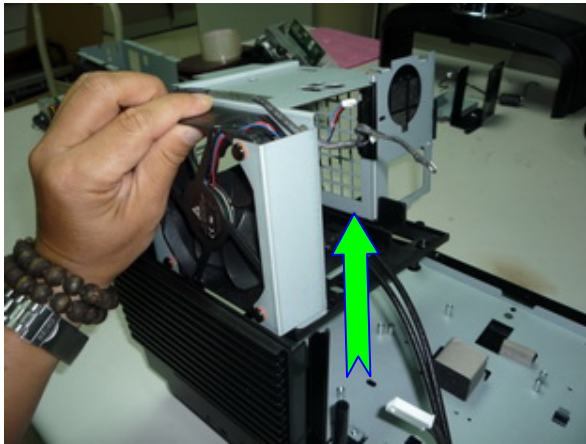


**Remove the screw. (S03)**

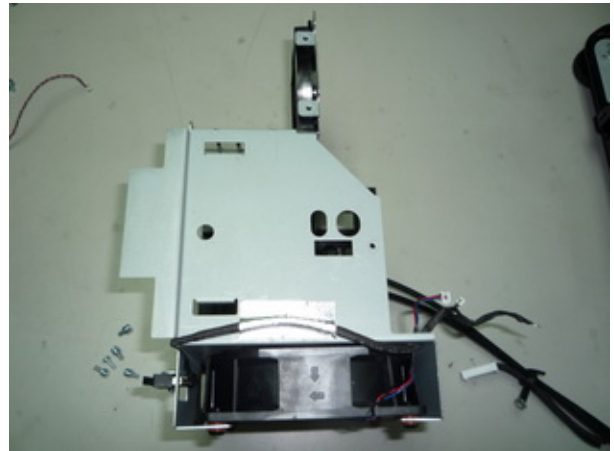


**Remove the screw. (S03)**

## Remove Lamp Module Chassis and Fan 3



**Remove the Lamp Module Chassis**



**Look the Lamp Module Chassis and Fan3.**



**Take out off 4 black nuts.**



**Look the Fan 3**



**Remove the screw. (S03)**



**Remove the Interlock switch.**

## Remove the ADJ Foot and Bottom Chassis



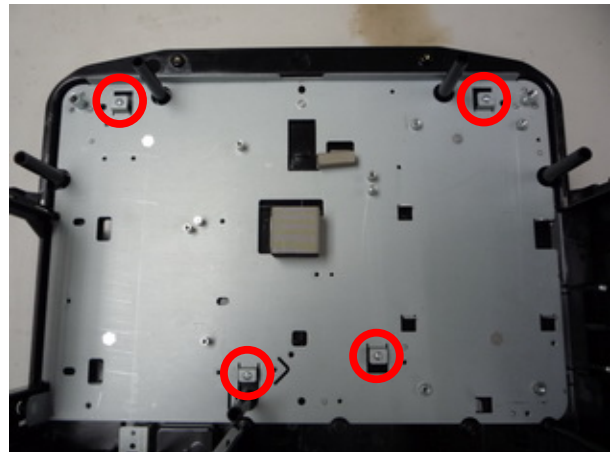
Remove the screw. (S03)



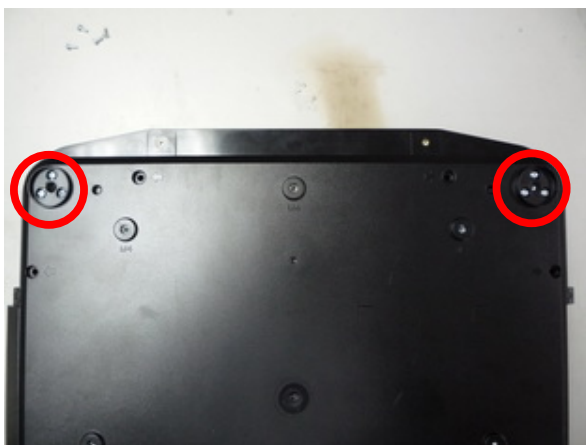
Remove the screw. (S03)



Look the ADJ Foot.



Remove these 4 screws. (S03)



Remove these 6 screws. (S03)



Review the Bottom Case Chassis.



## Review the Bottom Case



**Look the Bottom Case.**

## Appendix. Screw torque

Item	Screw Type	P/N	Screw Driver Torque (kg)
S01	M4*0.7*19.7	3105346600	4-5kg
S02	M4*0.7*105	3105343500	5-6kg
S03	M3*0.5*8	3100300800	4-5kg
S04	HEX 4.7*4	3461431703	3-4kg
S05	M3*6	3105280900	4-5kg
S06	M2*0.5	3105130200	1.8-2.2kg
S07	M3*0.5*10	3100301000	4-5kg
S08	M2*4	31052171500	1.8-2.2kg
S09	M2*0.4*5	3105263700	1.8-2.2kg
S10	$\varnothing$ 2*0.8*5	3109101800	3-4kg
S11	M3*0.5*6	3105039100	3-4kg
S12	M4*0.7*4	3102210601	4-5kg
S13	T 3*1.27*10	3109015300	5-6kg
S14	$\varnothing$ 3*1.06*8	3106140400	5-6kg

## 5. Flash Upgrade Flow

### 5-1.

### Projector USB Drivers Installation Guide

Ver 6.0.2.0

The document is to describe the Windows application software “**Flash-Tool**” for projector firmware. Its main purpose is to provide a detailed procedure of upgrading the application software of a DLP™ projector. The system requirement and the installation procedure of “**Flash-Tool**” are also included in the document.

**Note:**

The user must have administrative privileges on the target computer in order to install your driver.

The installation target directory must not write protected.

User also required having the basic knowledge of Windows application installation.

Attention: This utility is for DLP™ DDP2000/3020/2230/243X series projector only.

### System Requirement

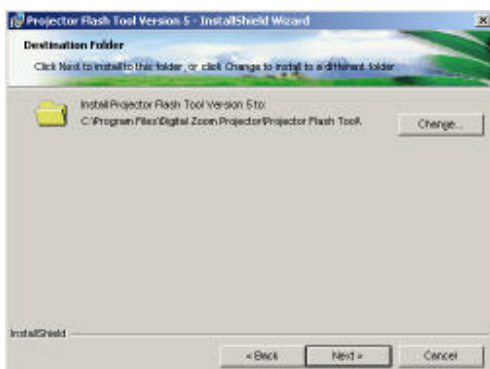
1. IBM compatible PC.
2. Windows XP-SP2 operating system.

### Install Flash-Tool to PC

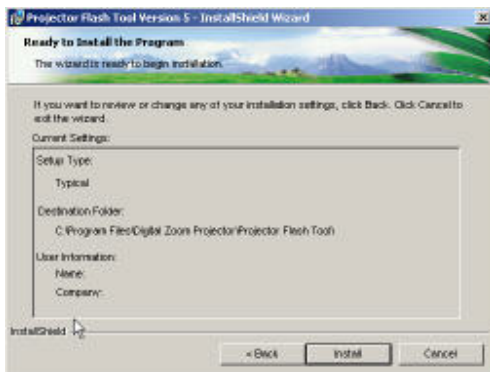
Run the “[Digital Zoom Projector Flash Tool Vx.y.msi](#)”, it will automatically launch the USB drivers update. Following are the dialogues of the Driver Install process as below.



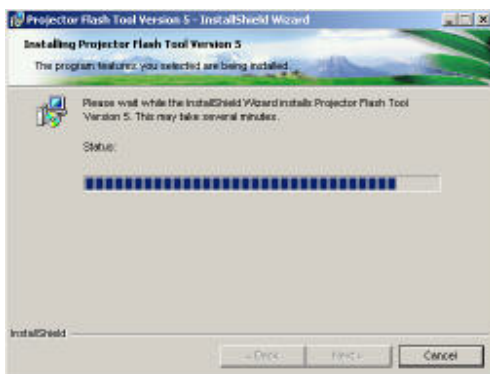
(Step 1) This is the first page of install dialog. Click on the “Next” button to continue, or Click on the “Cancel” button to cancel the installation.



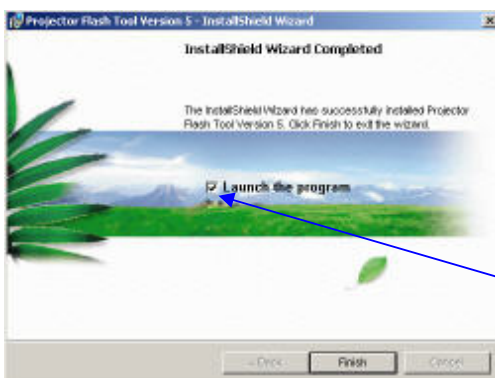
(Step 2) Driver Destination:  
Click on the “Change” button to change the default directory for saving the driver file somewhere else, or Click on the “Back” button to return to the previous page, or Click on the “Cancel” button to cancel the installation



(Step 3) Ready to install the drivers into the PC, press <Install> to start.



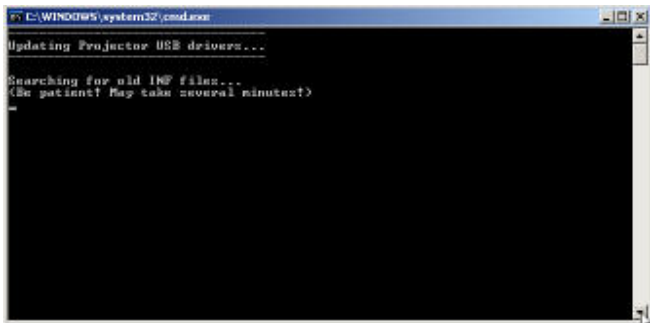
(Step 4) The Installer copies the necessary files to PC.



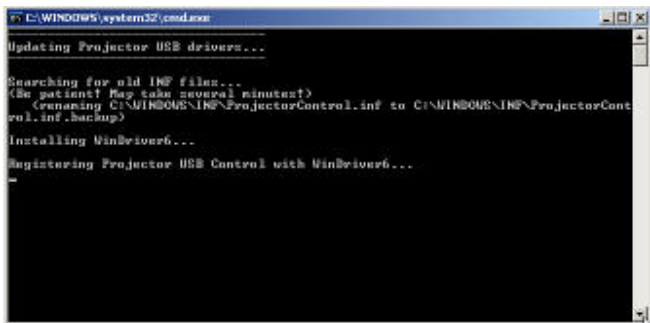
(Step 5) Press the <Finish> button with the “Launch” checkbox checked, the wizard will start the USB driver (INF) update.

Launch the driver update

**Note:** The USB driver (INF) update may take a few minutes depending your computer’s performance, and number of driver files. All dialogs will be automatically closed when the installation is completed.

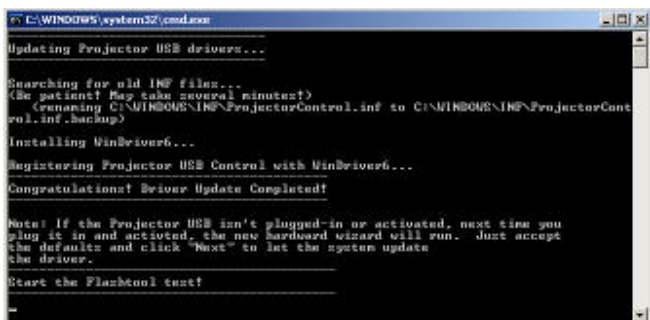


(Step 6) The install program copy the new INF into Windows directory, it will search the old INF and replace it with the newer one.

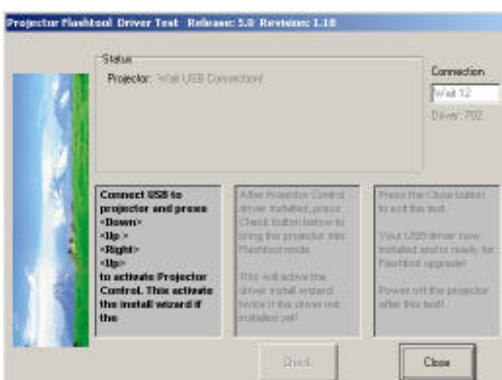


(Step 7) Remove the USB cable between PC and projector if it is connected.

The WinDrive USB drivers will be installed and registered to system.



(Step 8) After the driver install, a test application will start automatically with Windows hardware wizard for all necessary USB driver.

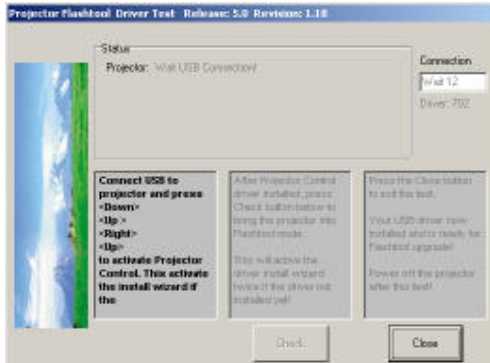


(Step 9) The driver test launched, wait for the key stroke to enter Projector Control mode...

**Connect the USB cable now!**



If the driver test application does not launch automatically, run the “Launch FlashToolBL.exe” from installed short cut at **Program> Digital Zoom Projector> projector flashtool> Launch FlasToolBL.exe**

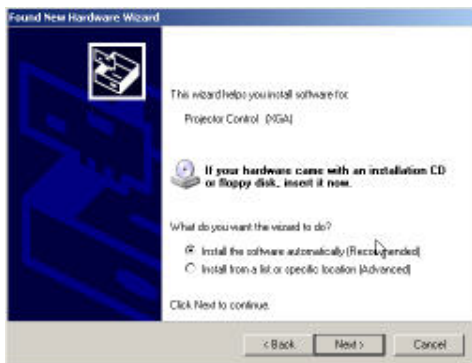


(Step 10) Make sure that the USB cable is firmly connected between projector and computer connect the power cord to the projector, and move the power switch in its ON position (if available) so that projector is in the STAND BY mode

Press <Down>, <Up>, <Right>, <Up> key in sequence on keypad. The power and lamp LED will blink and the Projector Control mode will be enabled.

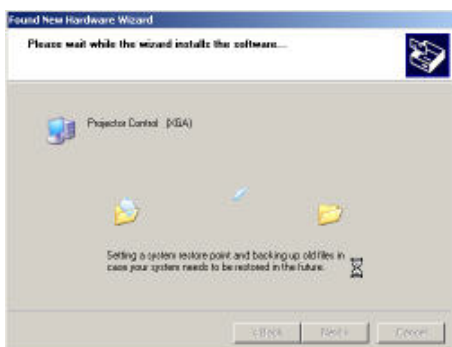


(Step 11) The New Hardware Wizard launched at the first time Windows detects a new USB device attached. Select “No, not this time” and Click on the “Next” button to continue. (This dialog may change on different Windows version)



(Step 12) Select “Install the software automatically” Click on the “Next” button to continue.

In case the wizard cannot find the driver (the ProjectorControl.inf), please select the other advanced option and specify the driver location manually. (Normally at C:\Program Files\Digital Zoom Projector\Projector Flash Tool)

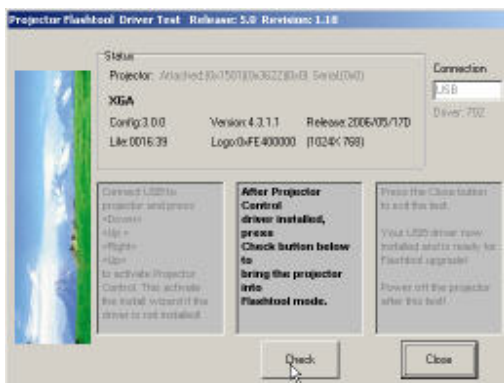


(Step 13) Windows updates the USB Projector Control driver when found.



(Step 14) Windows completed the new hardware wizard. Press the “Finish” to exit.

**Note:** In case you got USB enumeration problem, the USB no longer recognize your projector!



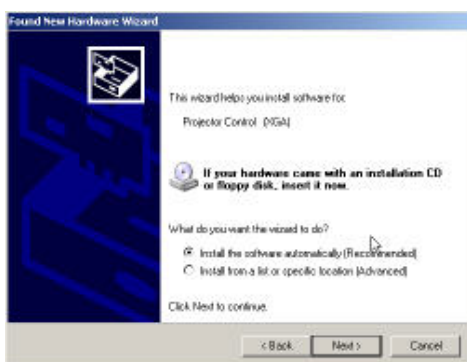
(Step 15) Once the Projector Control USB driver is enumerated, the projector information displayed in the status windows. Click on the <Check> button to place the projector in the Flashtool mode. The purpose of this function is to verify whether or not the project is successfully in the Flashtool mode.



(Step 16) The projector is switching to Flashtool mode after click the <Check>...

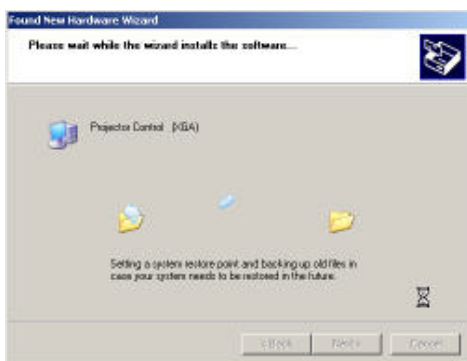


(Step 17) The Windows New Hardware Wizard will launch again for the second USB Projector Control. (Select “No, not this time”, Click on the “Next” button to continue)



(Step 18) Select “Install the software automatically” and Click on the “Next” button to continue.

In case the wizard cannot find the driver (the ProjectorControl.inf), please select the other advanced option and specify the driver location manually. (Normally at C:\Program Files\Digital Zoom Projector\Projector Flash Tool)



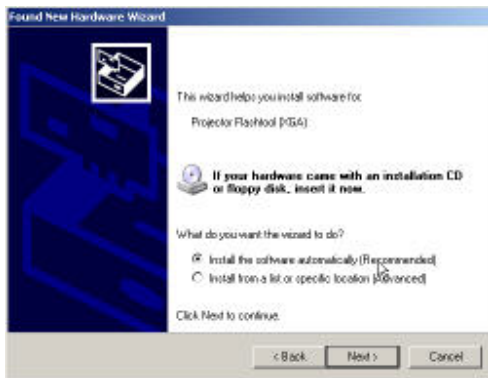
(Step 19) Windows updates the USB Projector Control driver when found.



(Step 20) The New Hardware Wizard launches and Windows detects a new USB device attached.

Select “No, not this time”.

Click on the “Next” button to continue.

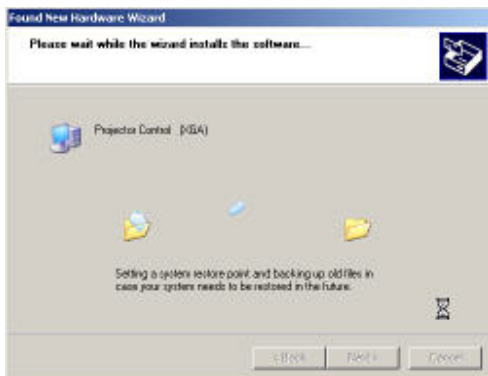


(Step 21) Select “Install the software automatically”.

Click on the “Next” button to continue.

In case the wizard cannot find the driver (the ProjectorControl.inf), please select the other advanced option and specify the driver location manually.

(Normally at C:\Program Files\Digital Zoom Projector\Projector Flash Tool)

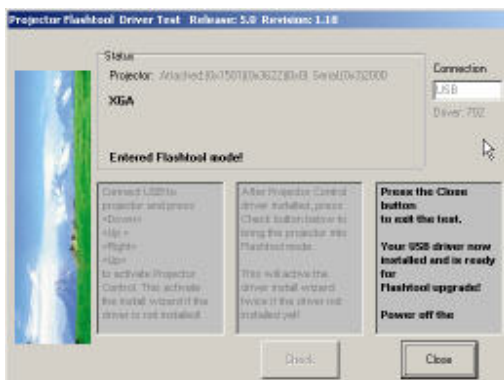


(Step 22) Windows updates the USB Projector Control driver when found.



(Step 23) Windows completes the new hardware wizard.

Press the “Finish” button to exit.



(Step 24) Congratulations! Power off the projector now. Your driver has been checked and works for Flash-tool.

## Appendix-A

### How to clear the USB enumeration registry?

Run "regedit" and select the following items

**HKEY\_LOCAL\_MACHINE->SYSTEM->CurrentControlSet->Enum->USB->**

The E400/AV/DP2601 **VID 1501&Pid 2601xxx**

The AV/DP2618 series **VID 1501&Pid 2618xxx**

The AV/DP3618 series **VID 1501&Pid 3618xxx**

The DP3602 series **VID 1501&Pid 3602xxx**

The DP3616 series **VID 1501&Pid 3616xxx**

The DP3622 series **VID 1501&Pid 3622xxx**

The PR301x series **VID 1501&Pid 2617xxx**

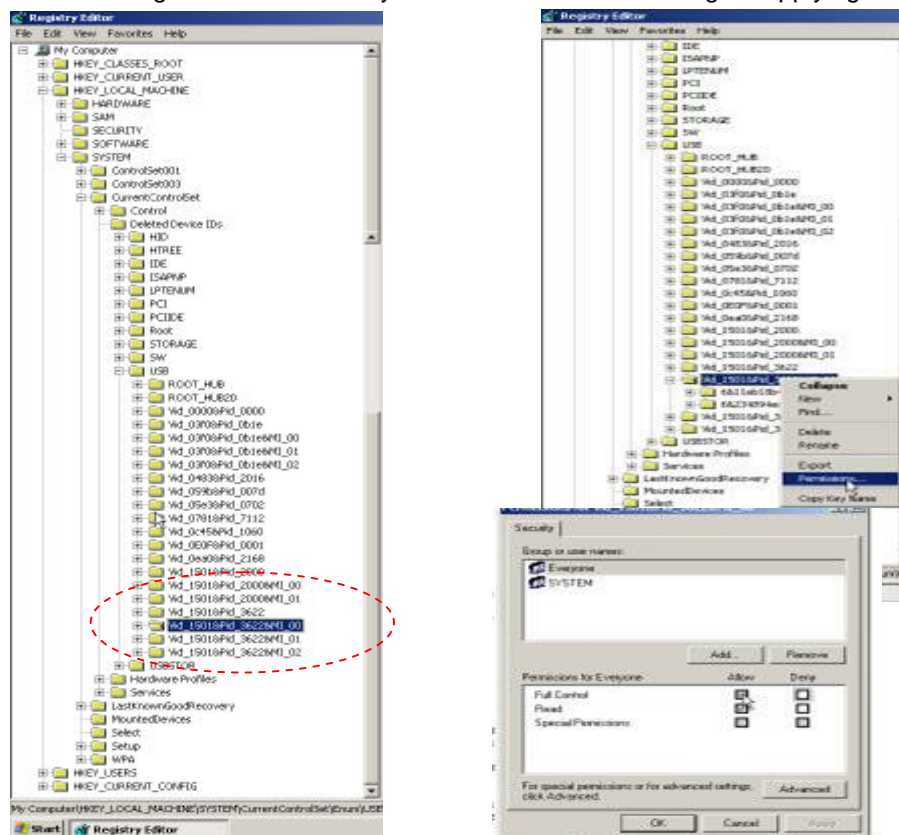
The PR302x series **VID 1501&Pid 3617xxx**

The PR50xx series **VID 1501&Pid 3622xxx**

The EP77x series **VID 1501&Pid 3622xxx**

The DDP2230/243X series **VID 1501&Pid 2230xxx**

Press <Delete> and remove these registries. (You need the read/write privilege of the Windows registry to delete it. Select the item and click right mouse will lead you to the Permissions dialog for applying the security options)

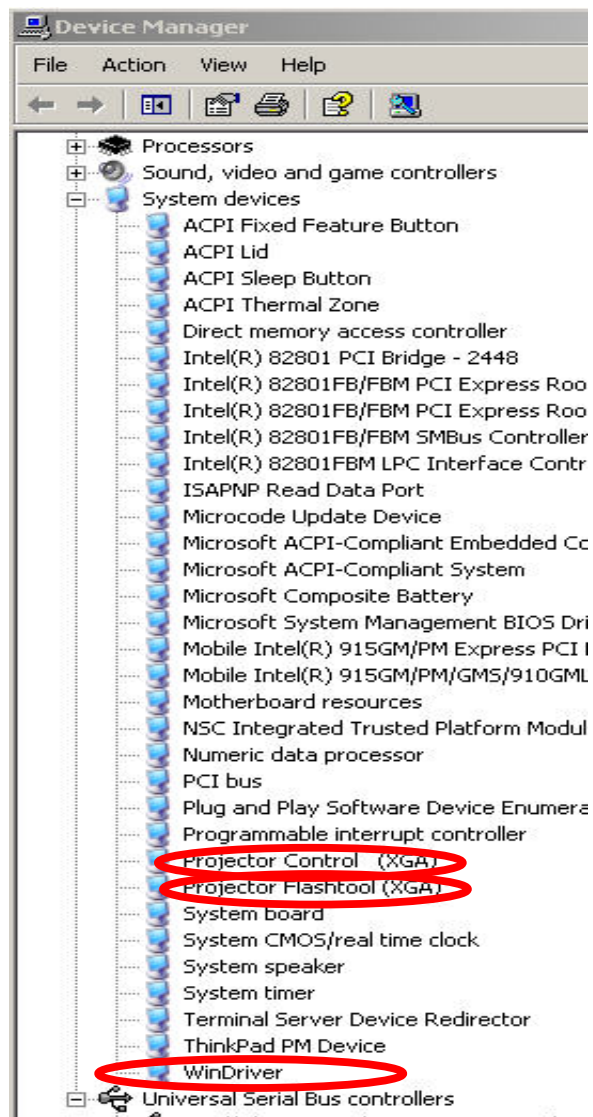
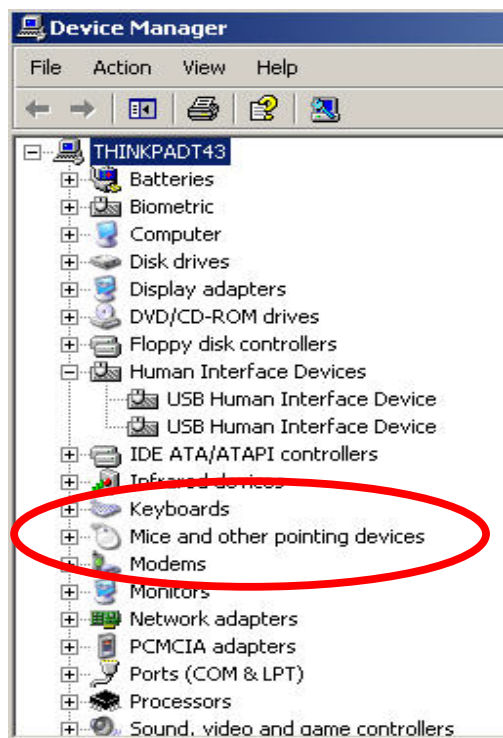




## Appendix-B

### Projector USB status on Windows Device Manager

1. The USB HID device will be installed automatically via Windows' USB hot-plug mechanism.
2. The Projector Control will be dynamically installed after entering the maintenance mode (Hit key sequence as <down>, <up>, <right>, <up>)
3. The Projector Flash-tool will be dynamically installed when starting the flash upgrading by Flash-tool or Flash-tool BL utility.
4. The Win-driver is the root driver for both Projector Control and Flash-tool.





## 5-2. DLP Projector Flash-Tool (Firmware) User Guide

The document is to describe the Windows application software “**Flash-Tool**” for projector firmware.

Its main purpose is to provide a detailed procedure of upgrading the application software of a DLP projector.

The system requirement and the installation procedure of “**Flash-Tool**” are also included in the document.

**Note:**

The user must have administrative privileges on the target computer in order to install your driver.

The installation target directory must not write protected.

User also required having the basic knowledge of Windows application installation.

Attention: This utility is for DLP™ DDP2000/2230/243X series projector only.

### System Requirement of Flash Tool

1. IBM compatible PC.
2. Windows XP operating system (English).
3. Projector Flash-tool USB driver installed.

### New features of this release

The latest TI DLP ASIC DDP243X are supported, with EON 4M/8M and Macronix 4M flash ROM.

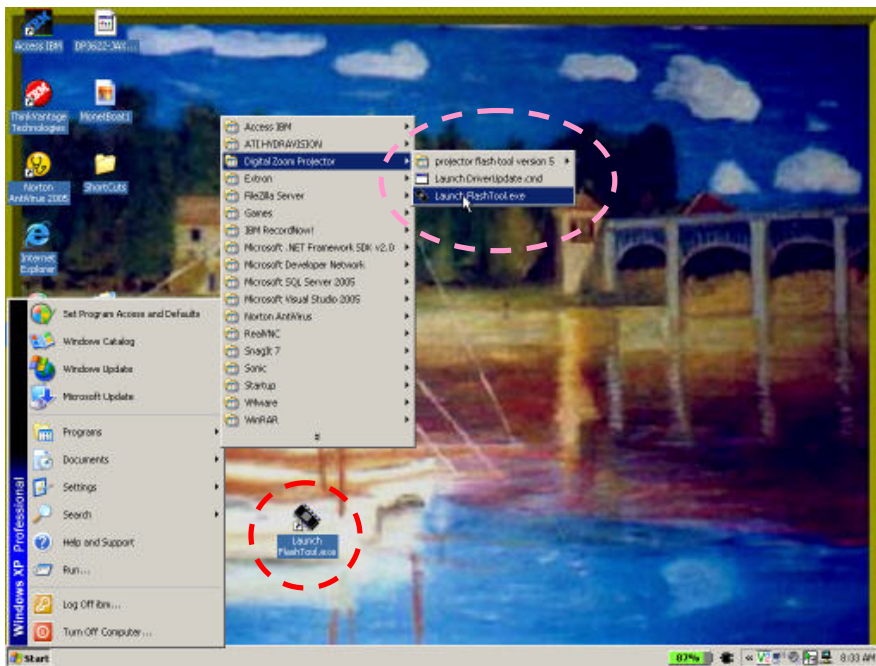
## Install Flash-Tool to PC

Execute the file of "[Digital Zoom Projector Flash Tool Vx.y.msi](#)".

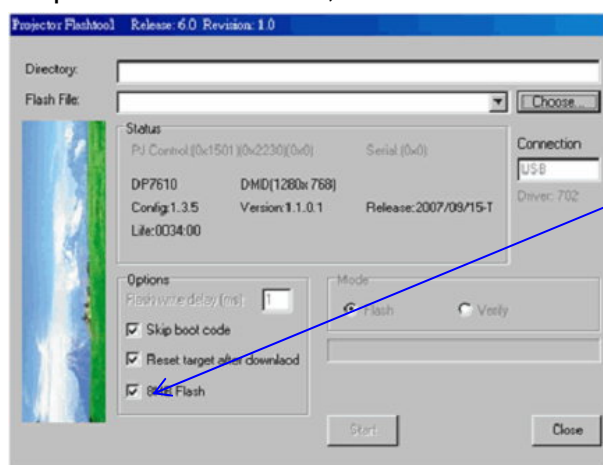
**Note:** If your projector USB driver is not installed yet, please refer to the USB driver installation guide for further details.

## Flash-Tool User's Guide (Upgrading Projector Firmware)

Step 1: Launch the "FlashTool.exe" from installed short-cut at **Program > Digital Zoom Projector> Launch FlasTool.exe** or click on the "Launch FlashTool.exe" shortcut icon on the desktop.



Step 2: While executed, a Flash-Tool window shall appear as the following picture.



8MB Flash ROM checkbox  
check this to use the 8MB  
Flash ROM

**Step 3:**

The System will be not under 1W condition before you programming flash updated.

Projector is in STAND BY mode.

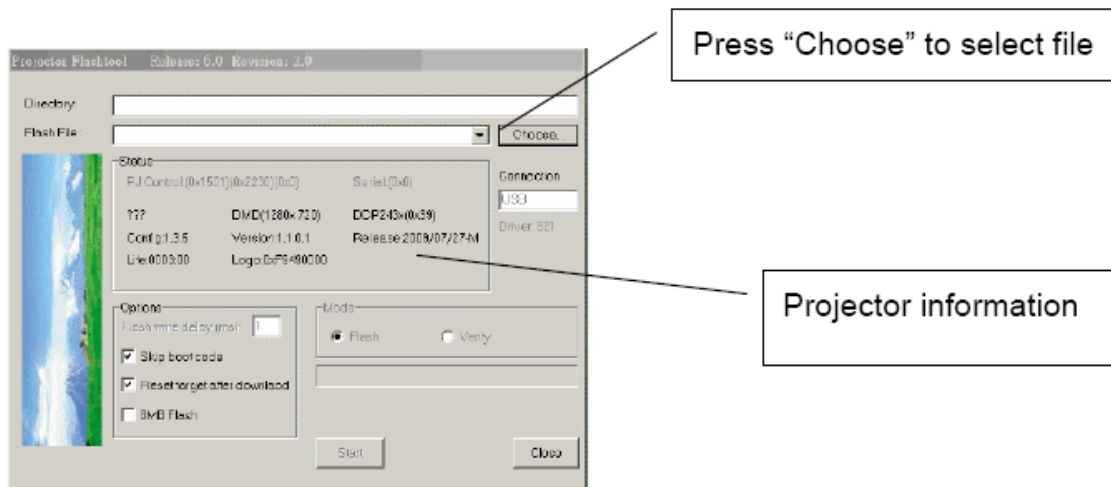
Make sure the USB cable is firmly attached between projector and computer.

Press holds the <Left> keys and connects the power cord to the projector at same time,

Lamp LED will flashing RED one time and please make sure the system is not under 1W stay.

Press <Down>, <Up>, <Right>, <Up> keys in sequence using keypad buttons, or using the IR remote controller for those with limited keypads.

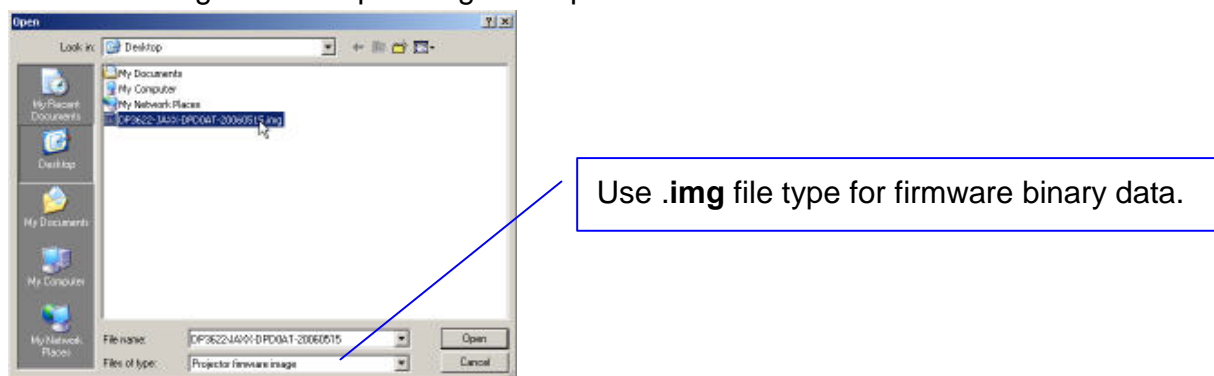
The lamp LED will flashing RED one time and the Flash-Tool mode will be enabled.

**Note:**

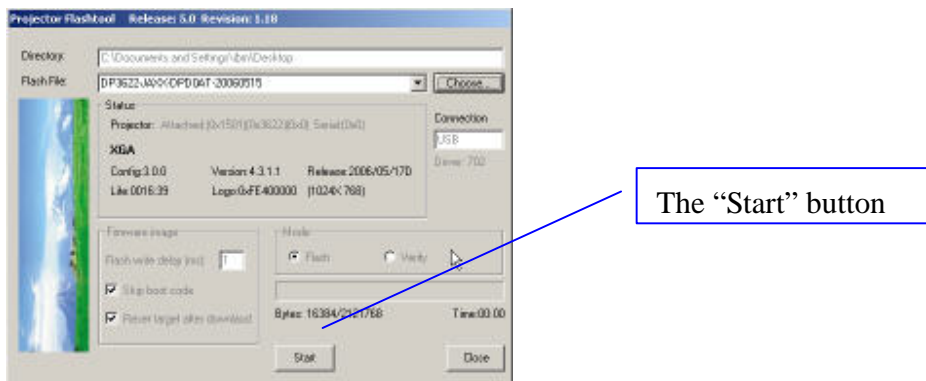
The Windows hardware wizard will pop up if the USB device driver is not installed.

Simply select the recommended options, and let Windows Wizard does the trick.

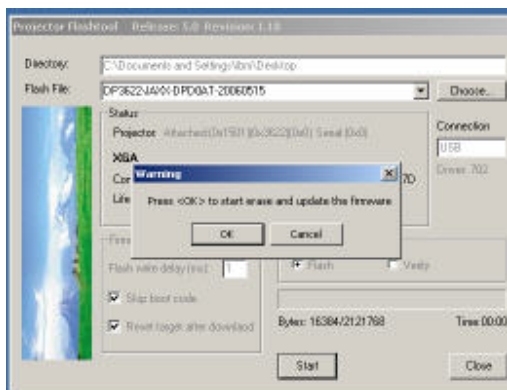
Step 4: Press "Choose" button to locate the new firmware which can be downloaded from website (For example: DP-3622 JAXX-DPD0A.img). Select the desired \*.img file by either double clicking the file or pressing the "Open" button to load the file.



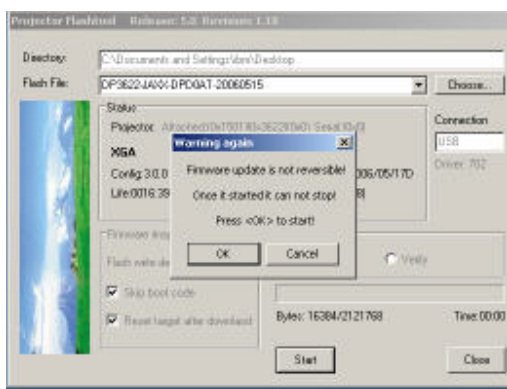
Step 5: The Flash-Tool will validate the signature of the binary image file for upgrading. The “Start” button will not enable if the binary image is not a valid projector firmware.



Step 6: Press the “Start” button to update the flash with the chosen firmware. A warning message box will appear for confirmation. Press <OK> to continue.



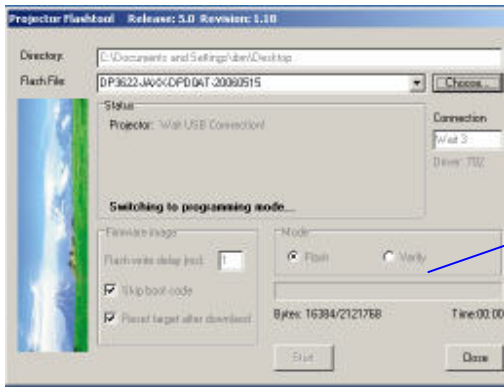
Step 7: The last warning message box appears, this is the last chance to stop the update. Press “OK” button to start the firmware update.



### Caution:

**DO NOT install any USB driver when erasing or upgrading process started.**

Step 8: According to the Flash technology, the old firmware will be erased first. Therefore, Flash-Tool will automatically erase the old firmware before upgrading.

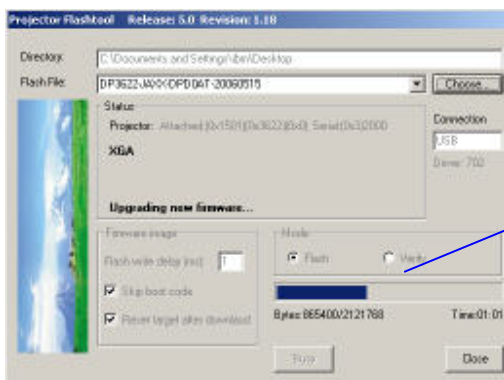


Erasing status

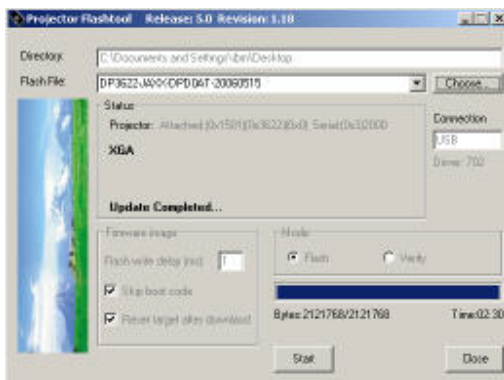
**Caution:**

**DO NOT install any USB driver when erasing or upgrading process started.**

Step 9: After old firmware erased, the new firmware upgrading process will start.

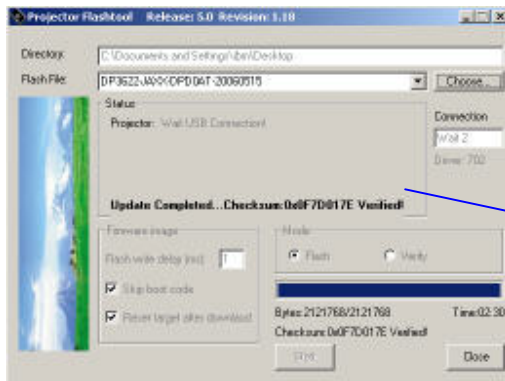


Upgrading new firmware





Step 10: After the new firmware upgraded, the Flash-Tool will perform the final validation. The dialog showed checksum with verification message!



Checksum verified

Step 11: Congratulations! Please Power off the projector.

### 5-3. DLP Projector Flash-Tool (splash logo) User Guide

The document is to describe the Windows application software “**Flash-Tool**” for projector firmware.

Its main purpose is to provide a detailed procedure of upgrading the application software of a DLP projector.

The system requirement and the installation procedure of “**Flash-Tool**” are also included in the document.

**Note:**

The user must have administrative privileges on the target computer in order to install your driver.

The installation target directory must not write protected.

User also required having the basic knowledge of Windows application installation.

Attention: This utility is for DLP™ DDP2000/2230/243X series projector only.

### System Requirement of Flash Tool

4. IBM compatible PC.
5. Windows XP operating system (English).
6. Projector Flash-tool USB driver installed.

### New features of this release

The latest TI DLP ASIC DDP243X are supported, with EON 4M/8M and Macronix 4M flash ROM.

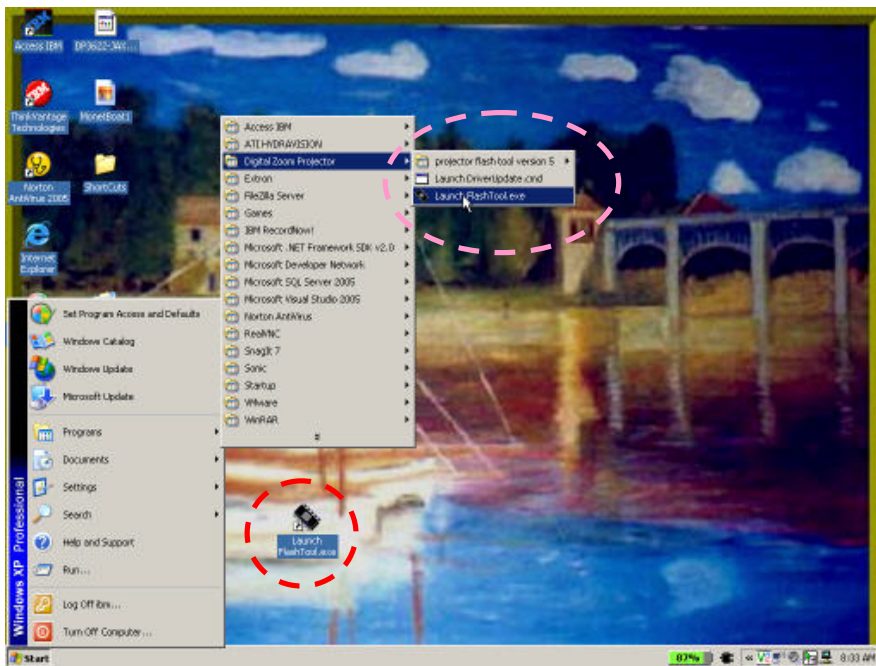
## Install Flash-Tool to PC

Execute the file of "[Digital Zoom Projector Flash Tool Vx.y.msi](#)".

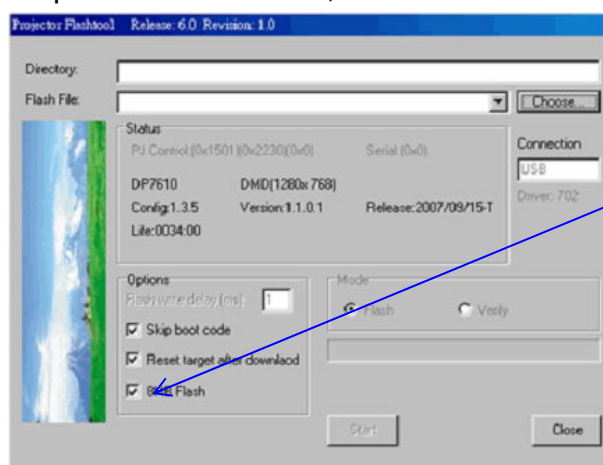
**Note:** If your projector USB driver is not installed yet, please refer to the USB driver installation guide for further details.

## Flash-Tool User's Guide (Upgrading Projector Logo)

Step 1: Launch the "FlashTool.exe" from installed short-cut at **Program > Digital Zoom Projector> Launch FlasTool.exe** or click on the "Launch FlashTool.exe" shortcut icon on the desktop.



Step 2: While executed, a Flash-Tool window shall appear as the following picture.



8MB Flash ROM checkbox  
check this to use the 8MB  
Flash ROM

**Step 3:**

The System will be not under <1W condition before you programming flash updated.

Projector is in STAND BY mode.

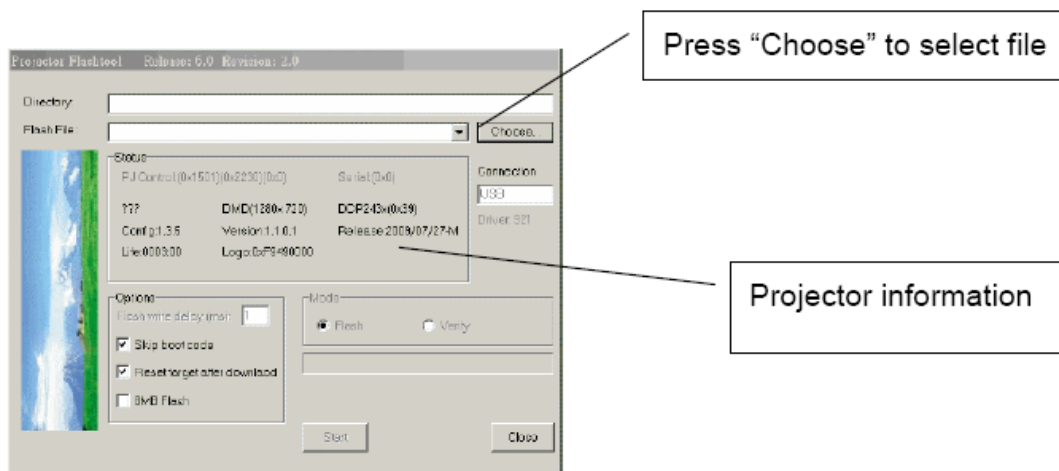
Make sure the USB cable is firmly attached between projector and computer.

Press holds the <Left> keys and connects the power cord to the projector at same time,

LAMP LED will flashing RED one time and please make sure the system is not under<1W stay.

Press <Down>, <Up>, <Right>, <Up> keys in sequence using keypad buttons, or using the IR remote controller for those with limited keypads.

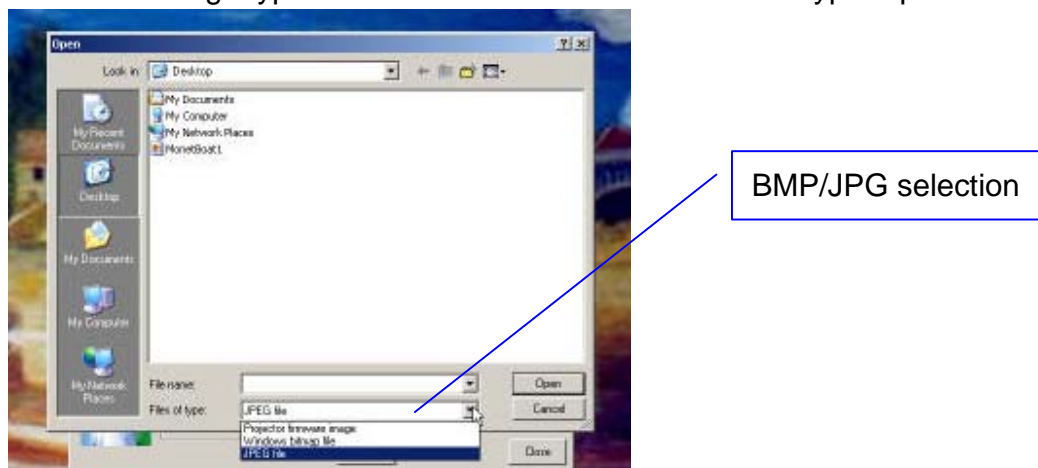
The lamp LED will flashing RED one time and the Flash-Tool mode will be enabled.

**Note:**

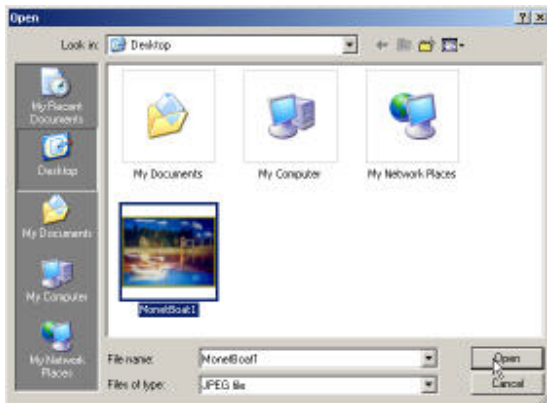
The Windows hardware wizard will pop up if the USB device driver is not installed.

Simply select the recommended options, and let Windows Wizard does the trick.

Select the image type in either BMP or JPG in the "File of type" option.

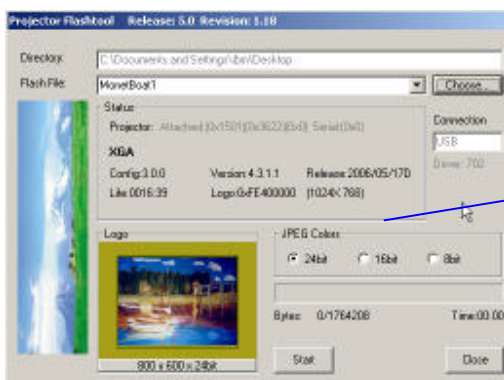


Step 5: Double click the desire logo file or press the “open” button to load the file.



Step 6: The Flash-Tool will validate the size of the logo file, which will be converted to RLE format and stored to the projector's flash memory.

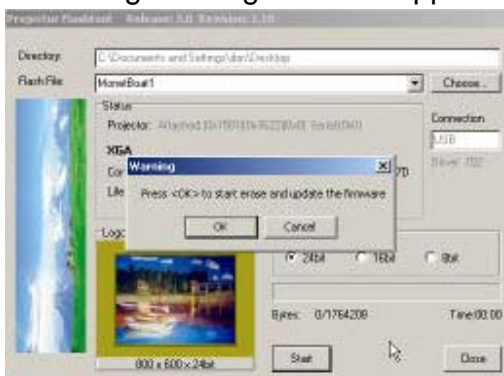
The compressed RLE size cannot exceed the flash memory limitation; otherwise, try to reduce the colors by selecting the JPEG colors option in the tool. (For JPEG files only)



JPEG color selection for reducing the splash logo

Step 7: Press the “Start” button to update the flash with the chosen firmware.

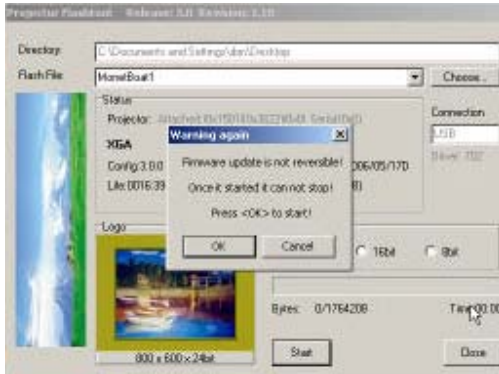
A warning message box will appear for confirmation. Press <OK> to continue.





Step 8: When the last warning message box appears, this is the last chance to stop the update.

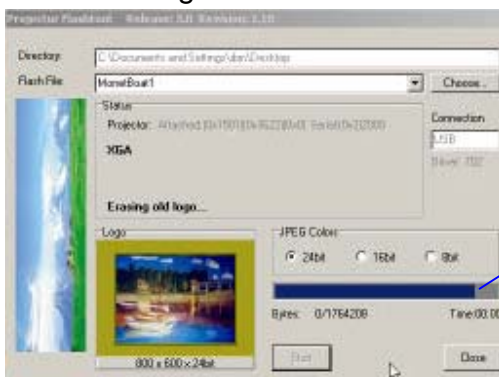
Press "OK" button to start the firmware update.



**Caution:**

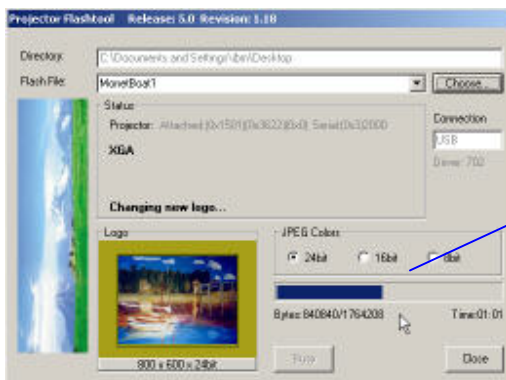
**DO NOT install any USB driver when erasing or upgrading process started.**

Step 9: According to the Flash-ROM technology, Flash-Tool needs to erase the old splash logo before adding the new one.



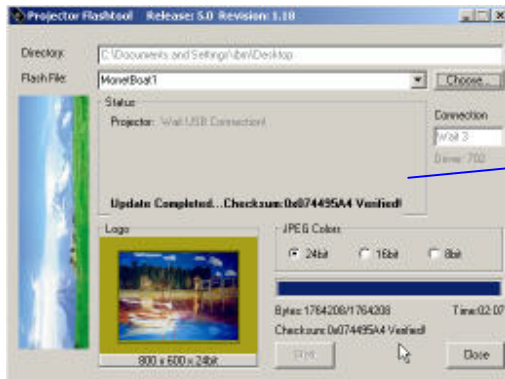
Erasing old logo

Step 10: After old logo erased, the new logo upgrading process will start.



Changing new logo

Step 11: After the new logo is changed, the Flash-Tool will perform the final validation. The dialog shows the checksum with a verification message!



Checksum verified

Step 12: Done! Please Power off the projector.

## 5-4. Powering On/Off the Projector

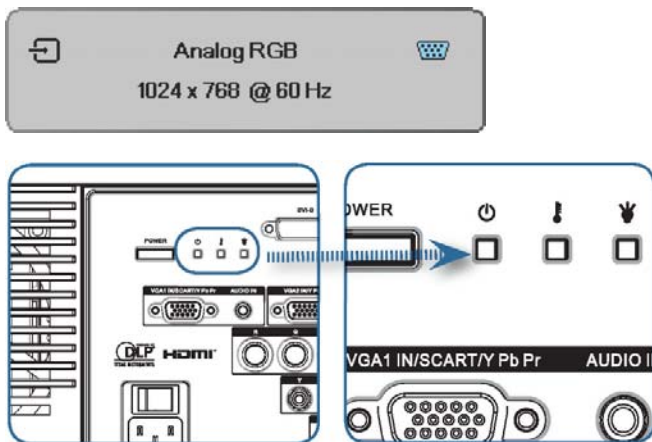
### Powering On the Projector

1. Remove the lens cover.
2. Connect the power cord to the projector.
3. Turn On the connected devices.
4. Ensure the Power LED turns amber and then press the power button to turn on projector.  
The Power LED will now flash blue.



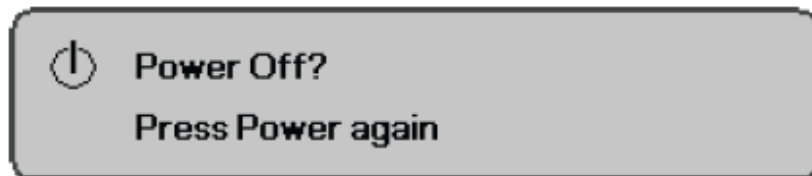
The startup screen will display in approximately 30 seconds. The first time you use the projector, you can select your preferred language and Power Mode setup after the startup screen display. If the connected device is a PC, press the appropriate keys on the computer keyboard to switch the display output to the projector.

If more than one input device is connected, press the "Source" button sequentially to switch between devices.



## Powering Off the Projector

1. Press the “Power ” button on the remote control or “POWER” button on the rear of the projector two times with one second interval in between to turn off the projector. First push of button will display the following message on the screen.



Press the button again to confirm the shut down. If the button is not pressed, the message will disappear in 15 seconds.

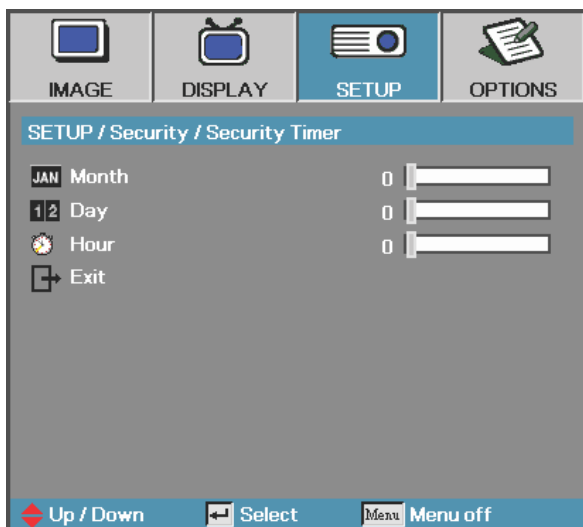
2. The cooling fans continue to operate for about 10 seconds for cooling cycle and the Power LED will turn blue.  
When the light is solid red, the projector has entered standby mode.  
If you wish to turn the projector back on, you must wait until the projector has completed the cooling cycle and has entered standby mode.
3. Disconnect the power cord from the electrical outlet and the projector.
4. Do not turn on the projector immediately following a power off procedure

## 5-5. SETUP / Security



### Security Timer

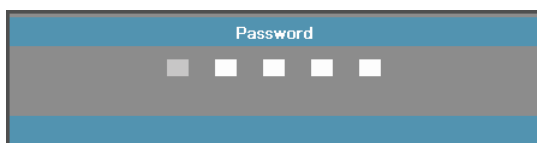
Enter the Security Timer sub menu.



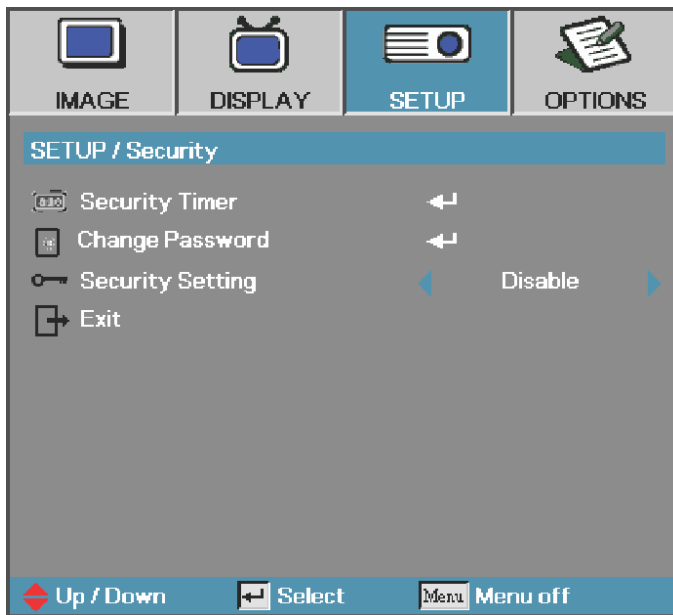
Enter the Months, Days, and hours that the projector can be used without entering the password. Exiting to the Setup menu activates the Security Timer.

Once activated, the projector requires a password on the specified dates and times to allow power on and access to the security menu.

If the projector is in use and the Security Timer is active, the following screen displays 60 seconds before the password is required.



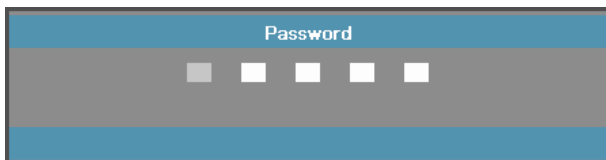




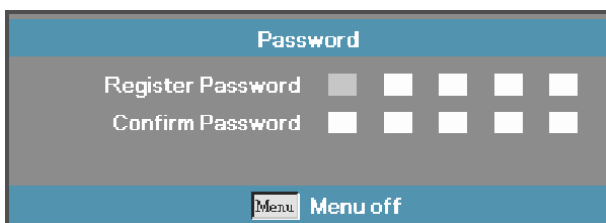
### Change Password

Use this submenu to change the security password for the projector.

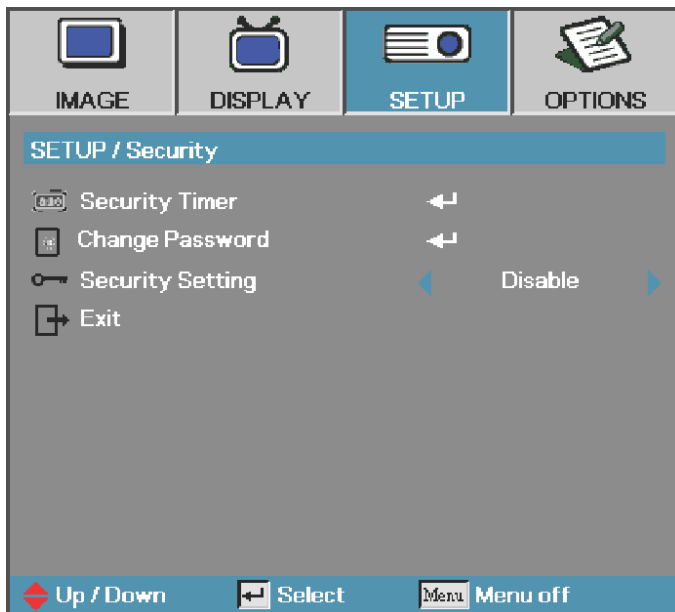
1. Select Change Password from the Security submenu.
2. The Confirm Change Password dialog box displays.
3. Select Yes.



4. Enter the default password <1> <2> <3> <4> <5>. A second password screen displays.



5. Enter the new password twice for verification.



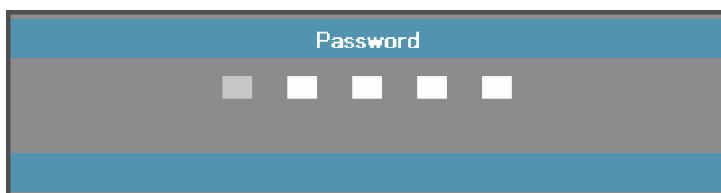
## **Security Setting**

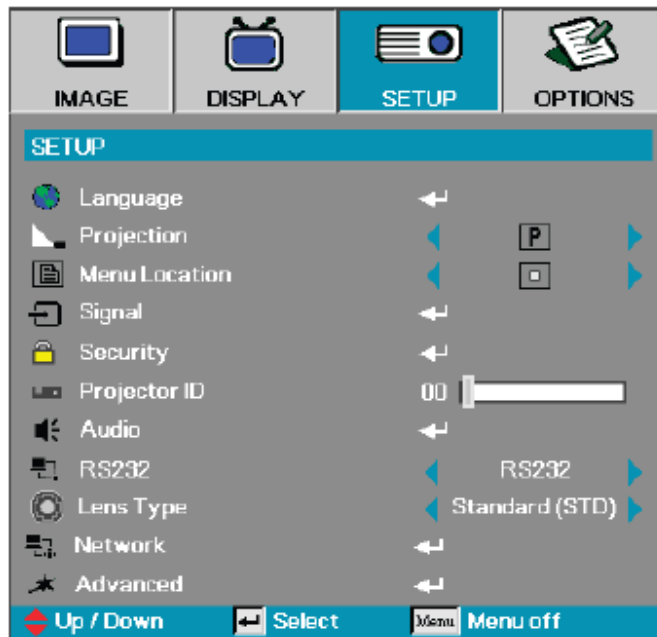
Enable or disable the security password.

Enabled—the current password is required to power on the projector and access the Security menu.

Disabled—no password is required for any function.

When security is enabled, the following screen displays at startup and before access to the Security menu is allowed:



**SETUP / Signal, Security, Projector ID, Audio, Advance, RS232, Network**Signal

Enter the signal menu. Set projector signal properties.

Security

Enter the signal menu. Access the projector's security features.

Projector ID

Select a two digit projector ID from 0 through 99.

Audio

Enter the Audio menu. Set audio level properties.

Advance

Enter the Advance menu. Select the screen display during startup.

RS232

Allows RS232 control of an individual projector.

Network

Allows LAN via web browser (Internet Explore) to control of projector.

## 6. Calibration

Step of into Service Mode

Step 1 : To turn on the projector, press the Remote controller to disappear the OSD,  
then press "Power" key => "Left" key => "Right" key => "Down" key => "Up" key.

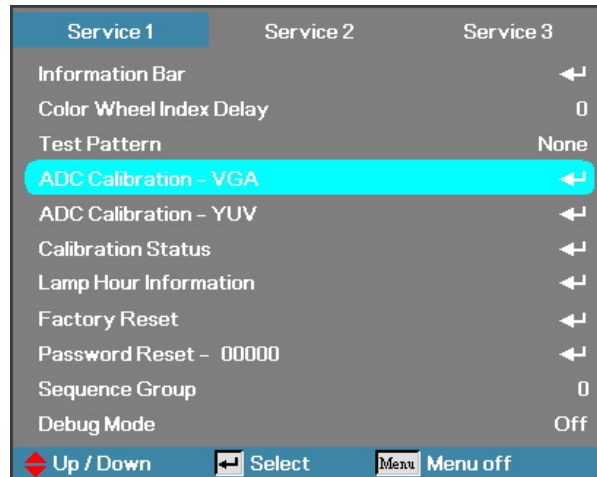
Step 2 : If password is correct then go into Service Mode.

Then OSD will pop up shows as follows:

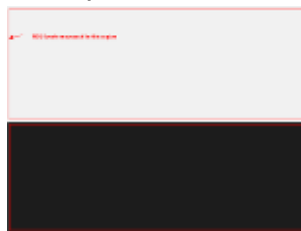


## 6-1. Calibrate Analog RGB (“1024x768@60Hz” & “1280x800@60Hz”):

Step 1 : In Service 1Mode select ADC Calibration - VGA In this menu input pattern with White(240,240,240) and Black(16,16,16) for calibrate VGA Source . After input ready press “Enter” key to calibration ◦



Input Pattern



Step 2 : After complete the OSD will show the picture as follow , if not complete, just close the OSD ◦

Calibration Status - VGA	
Gain - Red	0
Gain - Green	0
Gain - Blue	0
Offset - Red	0
Offset - Green	0
Offset - Blue	0
Calibration Status - YUV	
Red Mid-level Offset	0
Blue Mid-level Offset	0
Menu = Exit	

Note : Offset & Gain Value

	Default	After ADC
Offset	511	
Gain	511	

Step 3 : Compare internal white pattern and RGB source white pattern, if the brightness gap ratio of these two source is bigger than 3.5%.

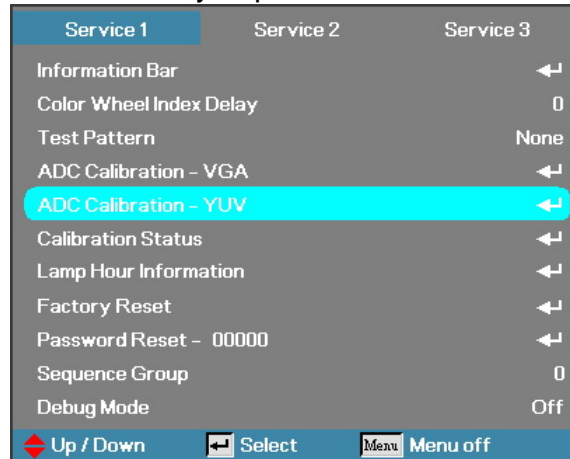


## 6-2. Calibrate Analog YpbPr:

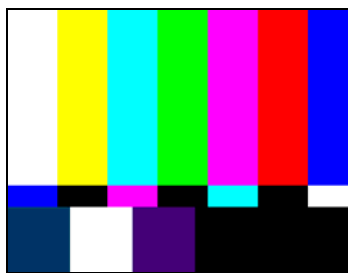
Equipment: VG828, must be take off H/V sync terminal from machine.

Step 1 : In Service 1 Mode select ADC Calibration - YUV. In this menu input pattern with 75% SMPTE pattern for calibrate YUV Source and notice that the input source must be 480i format .

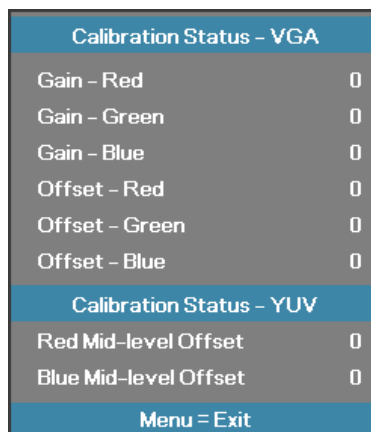
After input ready press "Enter" key to proceed .



Input Pattern



Step 2 : After complete the OSD will show the picture as follow, if not complete, just close the OSD .

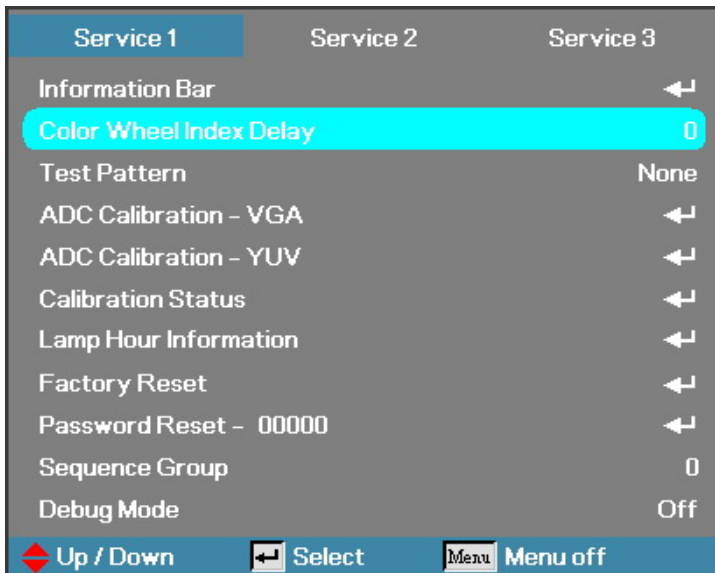


NOTE: You can select Calibration Status – VGA or Calibration Status – YUV item to watch the calibrated value at any time .

### 6-3. Color Wheel Index, DMD Contrast and Brightness Adjustment @ RGB source

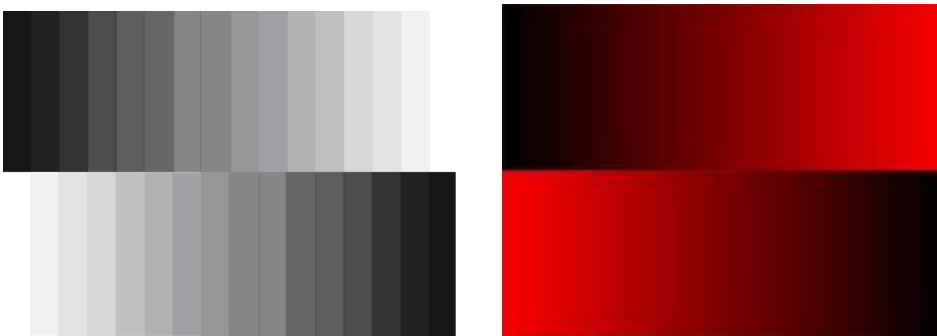
- A. Switch Timing to RGB ("1024x768@60Hz" XGA & "1280x800@60Hz" WXGA)
- B. Then go into Service Mode.

In the Service Mode.



- C. Switch bright mode and Pattern 47 "16 Gray Scale", and then check gray scales are still distinct.
- D. Select "CW INDEX Delay Time".  
The default value is 340. The range is 0~719.
- E. Switch to pattern 49 "256 Gray Scale", tune off G, B channel, check the smooth in brighter level of the R 256 ramp. If not, fine tune "CW INDEX Delay Time" until R 256 ramp smooth.

Brightness and Contrast need to measure with RGB source  
("1024x768@60Hz" XGA & "1280x800@60Hz" WXGA)



## 7. Installing or Removing the Optional Lens

### Notice:

Do not shake or place excessive pressure on the projector or the lens components as the projector and lens components contain precision parts.

When shipping the projector with the optional lens, remove the optional lens before shipping the projector. The lens and the lens shift mechanism may encounter damage caused by improper handling during transportation.

Before removing or installing the lens, be sure to turn off the projector, wait until the cooling fans stop, and turn off the main power switch.

Do not touch the lens surface when removing or installing the lens.

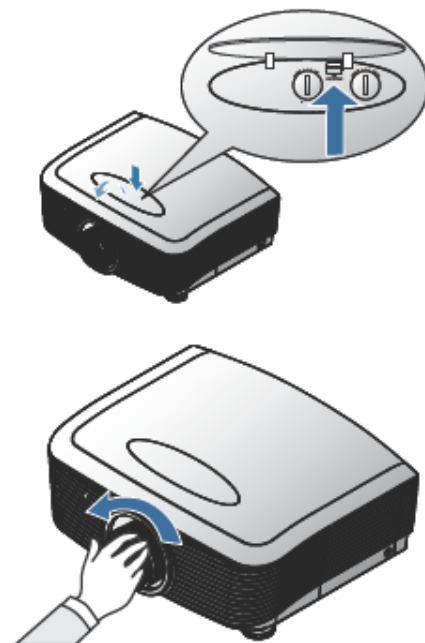
Keep fingerprints, dust or oil off the lens surface. Do not scratch the lens surface.

Work on a level surface with a soft cloth under it to avoid scratching.

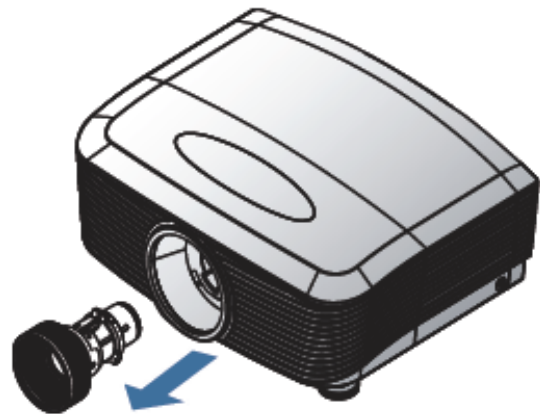
If you remove and store the lens, attach the lens cap to the projector to keep off dust and dirt.

### Removing the Existing Lens From the Projector

1. Push down and release the top cover to open.
2. Pull the locking lever to the unlock position.
3. Grasp the lens and pull out.
4. Rotate the lens counterclockwise.  
The existing lens will be disengaged.

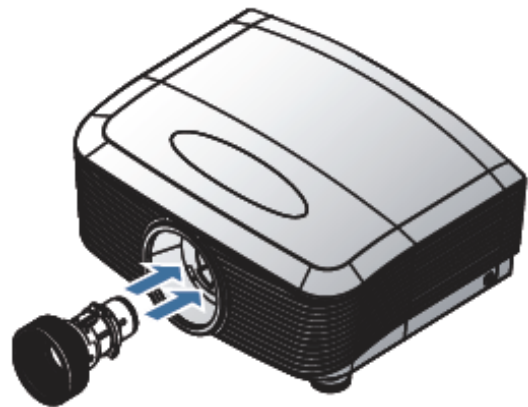


5. Pull out the existing lens slowly.



## Installing the New Lens

1. Align the notches and corrective position the electrical contact pad as shown in the picture.



2. Rotate the lens clockwise until you feel it click into place.



## 8. Projection Lamp

### 8-1. Projection Lamp

The projection lamp should be replaced when it burns out. It should only be replaced with a certified replacement part, which you can order from your local dealer.

**Important:**

1. The lamp contains a certain amount of mercury and should be disposed according to local ordinance regulations.
2. Avoid touching the glass surface of the new lamp: Doing so may shorten its operation life.

**Warning:**

Be sure to turn off and unplug the projector at least 60 minutes before replacing the lamp. Failure to do so could result in a severe burn.

### 8-2. Replacing the Projection Lamp

The projector automatically detects the lamp life.

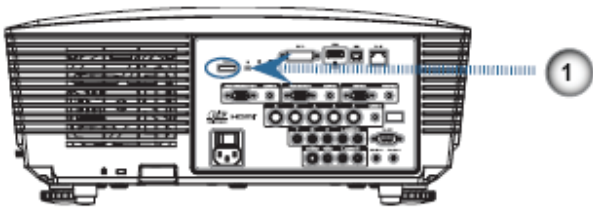
When the lamp life is nearing the end of use, you will receive a warning message.



**Lamp is approaching the end of its useful life**

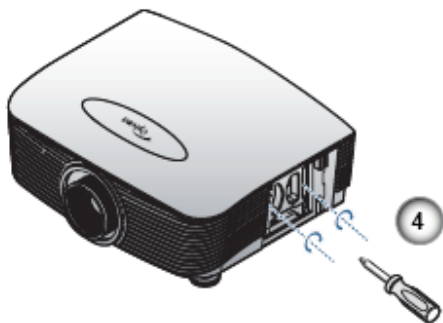
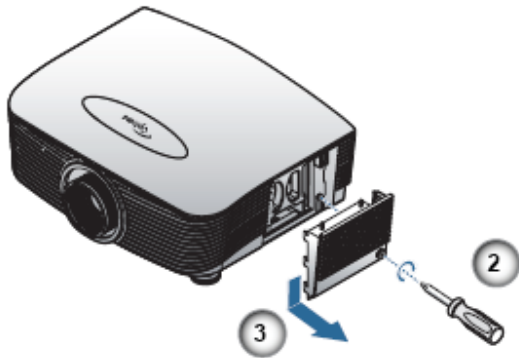
When you see this message, please contact your local reseller or service center to change the lamp as soon as possible. Make sure the projector has been cooled down for at least 30 minutes before changing the lamp.





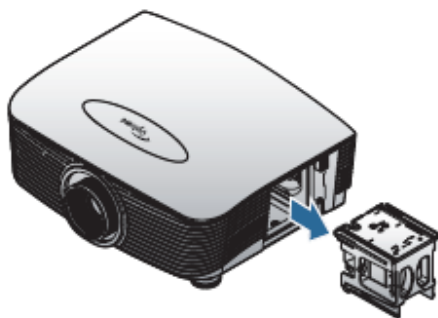
## Lamp Replacing Procedure:

1. Switch off the power to the projector by pressing the Power button.
2. Allow the projector to cool down at least 30 minutes.
3. Disconnect the power cord.
4. Unlock the lamp cover.
5. Pull up and remove the cover.
6. Use a screwdriver to remove the screws from the lamp module.
7. Pull out the lamp module.



**To replace the lamp module, reverse the previous steps.**

Turn on the projector and do "Lamp Reset" after the lamp module is replaced.



## 8-2. Ceiling Installation

To prevent damage to your projector please use the recommended mounting package for installation.

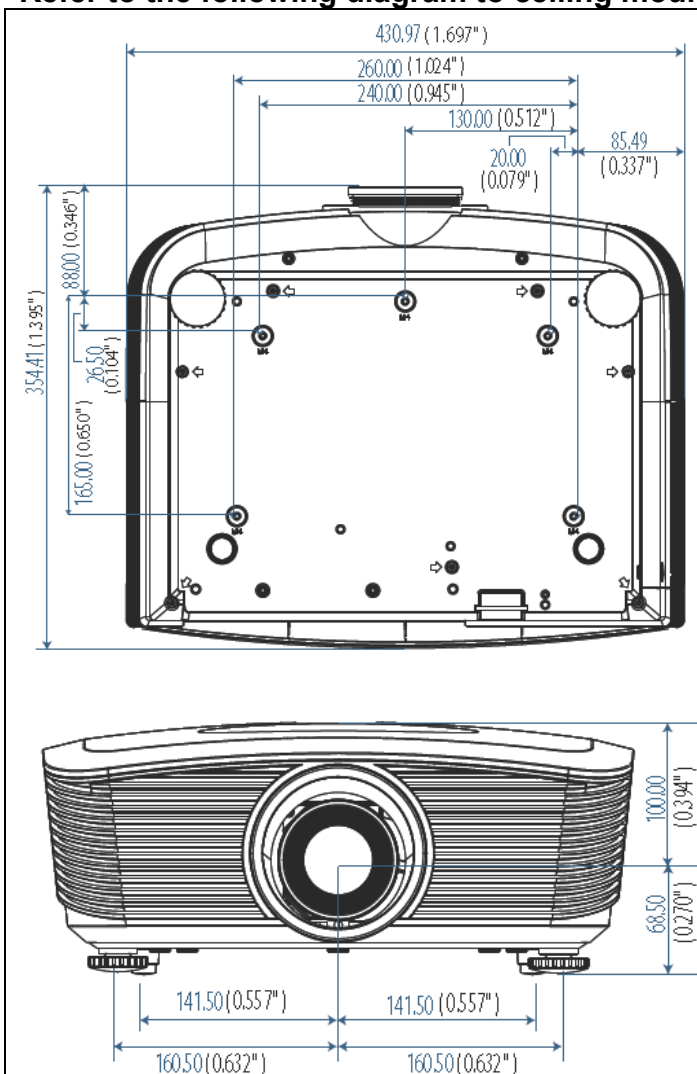
If you intend to use a third party ceiling mount, ensure that the screws meet the following specifications:

1.Screw Type: M4

2.Maximum screw length: 11 mm

3. Minimum screw length: 9 mm

Refer to the following diagram to ceiling mount the projector.

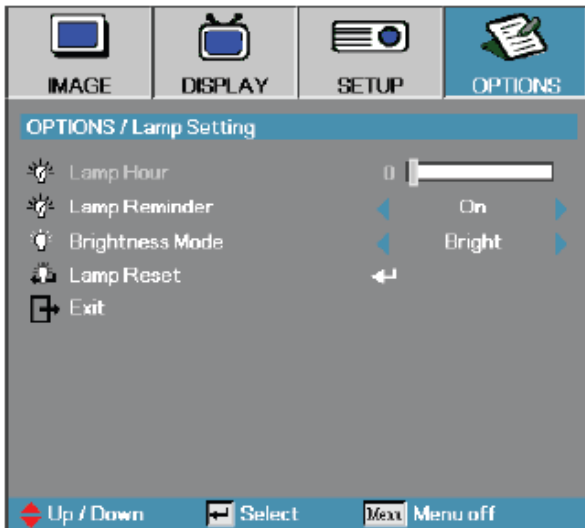


### Warning:

1. If you buy ceiling mount from other company, please be sure to use the correct screw size.  
Screw size will be different on different mounts.  
It depends on the plate thickness.
2. Be sure to keep at least 10cm gap between the ceiling and the bottom of the projector.
3. Avoid installing the projector near a heat source.

### 8-3. Lamp Setting

Turn on the projector, press the Remote controller to disappear the OSD, then press “OPTIONS” item into “OPTIONS – LAMP SETTINGS” page.



#### Lamp Hour

Display the cumulative lamp operating time.

#### Lamp Reminder

Choose this function to show or to hide the warning message when the changing lamp message is displayed.

The message will appear up 30 hours before suggested replacement of lamp.

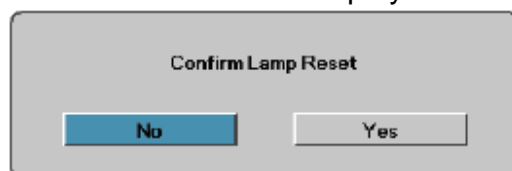


Lamp is approaching the end of its useful life

#### Reset

After replacing the lamp, reset the lamp counter to accurately reflect the new lamp's life span.

1. Select the lamp reset, a confirmation screen displays.



2. Select **Yes** to reset the lamp counter to zero.

## 9. Cleaning

### 9-1. Cleaning the Lens

You can purchase optic lens cleaner from most camera stores. Refer to the following to clean the projector lens.

1. Apply a little optic lens cleaner to a clean soft cloth.  
(Do not apply the cleaner directly to the lens.)
2. Lightly wipe the lens in a circular motion.

**Caution:**

1. Do not use abrasive cleaners or solvents.
2. To prevent discoloration or fading, avoid getting cleaner on the projector case

### 9-2. Cleaning the Case

Refer to the following to clean the projector case.

1. Wipe off dust with a clean dampened cloth.
2. Moisten the cloth with warm water and mild detergent (such as used to wash dishes), and then wipe the case.
3. Rinse all detergent from the cloth and wipe the projector again

**Caution:**

To prevent discoloration or fading of the case, do not use abrasive alcohol-based cleaners.

## 10. SERVICE NOTE

### 10-1. Service Note Description

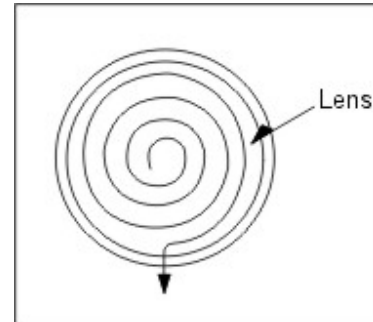
Carry out cleaning of the main unit and interior when replacing the lamp or making inspections.

The glass cleaner used with the following parts is as follows.

#### 1) Cleaning the Projection Lens

\*When dust and fingerprints, etc. are on the lens surface, use the designated glass cleaner to remove as shown in the figure at the right. For fingerprints and other soiling that are difficult to remove with a dry cloth, use a designated glass cleaner which has been moistened in water and then use a dry cloth to dry it off.

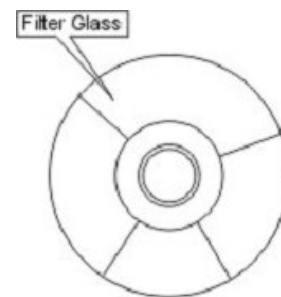
\*The projection lens surface has a special coating. Do not use detergents or solvents on the surface.



#### 2) Cleaning the Color Wheel Assy

\*The color filter is made of thin glass. Be very careful when handling the filter.

\*In case of fingerprints, etc. on the surface, clean in the same way as the projection lens unit as described in item 1). Do not use detergents as this could cause peeling of the color filter.



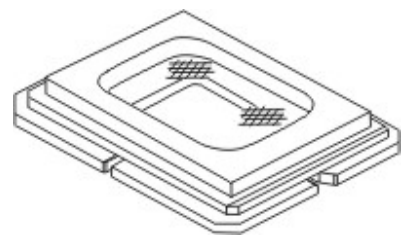
#### 3) Cleaning the DMD

\*The DMD surface is glass and can be cleaned. However, avoid scratches as these can have a direct influence on the image.

\*In case of dust on the DMD surface use an air cleaner ( with a device to prevent static, if possible) to clean off the surface.

\*In case of fingerprints, etc., add a small amount of water to the designated glass cleaner and wipe off in one direction. Then use the designated dry glass cleaner to wipe off in the same direction.

\*Do not use absolute alcohol or other substances that could leave streaks after drying.



#### 4) Cleaning the Reflecting Mirror

\*Be careful not to touch the reflecting mirror. The surface is composed of vapor deposition silver and touching it directly with the hands can lead to burnishing.

\*Do not clean other than with air.

#### 5) Cleaning the Main Unit

\*Clean with a soft fuzz-free cloth. In case of severe soiling, use a well-wrung cloth dipped in a neutral agent to remove soiling and then finish with a dry cloth.

\*Do not clean with thinner, benzene or similar agents as this could lead to deterioration or peeling of paint.

\*In case of dust in suction or exhaust holes or the interior, disassemble the main unit and use air to remove the dust from the inside.

## 10-2. LED Error Messages

Error Code Message	POWER	LAMP	TEMP
	(Blink)	(Blink)	(Static)
T1 temperature over temperature	0	0	ON
Thermal Break	4	0	0
Lamp strike error	5	1	0
Ballast over temperature	5	2	0
Fan1 error (Lamp Fan)	6	1	0
Fan2 error (Ballast Fan)	6	2	0
Fan3 error (Burner Fan)	6	3	0
Lamp door open	7	0	0
DMD error	8	0	0
Color wheel error	9	0	0



### 10-3. Factory Preset Display Modes

#### Computer Compatibility

Signal	Resolution	Refresh Rate (Hz)
NTSC	-	60
PAL/SECAM	-	50
VESA	640 × 350	70.1/ 85.1
	640 × 400	70.1 / 85.1
	720 × 350	70
	720 × 400	70/ 85
	720 × 576	50/ 60
VGA	640 × 480	60/ 67/ 72.8/ 75/ 85
SVGA	800 × 600	56.3/ 60.3/ 75/ 72.2/ 80/ 85.1
	832 × 624	72/ 75
	1024 × 576	50/ 60
XGA	1024 × 768	60/ 70.1/ 72/ 75/ 85
	1152 × 864	60/ 70/ 75/85
HD720	1280 × 720	50/ 60/ 75/ 85
WXGA	1280 × 768	60/ 70/ 75/ 85
WXGA-800	1280 × 800	60
SXGA	1280 × 1024	60/ 75/85
SXGA+	1400 × 1050	60
UXGA	1600 × 1200	60
	1600 × 1050	60
HDTV	1920 × 1080	25/30
	1920 × 1080i	50/ 60
	1920 × 1080p	24/25/30/50/ 60
	1280 × 720	60
	1280 × 720p	50/ 60
SDTV	720 × 576	50
	720 × 576i	50
	720 × 576p	50

Signal	Resolution	Refresh Rate (Hz)
	720 x 480	60
	720 x 480i	60
	720 x 480p	60

### Apple Mac Compatibility

Resolution		Macbook	Macbook Pro (Intel)	Power Mac G5	Power Mac G4
	Hz-	Analog	Analog	Analog	Analog
800x600	60	o	o	-	-
800x600	72	o	o	o	o
800x600	75	o	o	o	o
800x600	85	o	o	o	o
1024x768	60	o	o	o	o
1024x768	70	o	o	o	o
1024x768	75	o	o	o	o
1024x768	85	o	o	o	o
1280x720	60	o	o	o	o
1280x720	75	o	o	-	o
1280x720	85	o	o	-	o
1280x768	60	o	o	-	o
1280x768	75	o	o	o	o
1280x768	85	o	o	-	o
1280x800	60	o	o	o	o
1280x1024	60	-	o	o	o
1280x1024	75	-	o	o	-
1680x1050	60	o	o	-	-
1920x1200	60	o	o	-	-

## 11. RS-232 Command

### RS232 Commands

Baud Rate	9600
Data Bits	8
Parity Check	None
Stop Bits	1
Flow Control	None
UART16550 FIFO	Disable

Lead Code	Projector ID		Command ID			space	variable	carriage return
~	X	X	X	X	X		n	CR
Fix code One Digit	Set in OSD 00~99 Two Digit 00 is for universal use		Defined by Optoma 2 or 3 Digit See the Follow content			One Digit	Per item Definition	Fix code One Digit

#### Keypad Command

Function			ASCII	Pass	Fail
Power	On/Off	n=1/n=2 & 0	~XX00 n	P	F
Power On with Password			~XX00 1nnnn	P	F
Resync		n=1	~XX01 n	P	F
AV Mute	On/Off	n=1/n=2 & 0	~XX02 n	P	F
Mute	On/Off	n=1/n=2 & 0	~XX03 n	P	F
Freeze		n=1	~XX04 n	P	F
Unfreeze		n=2			
IR Function	On/Off	n=1/n=2 & 0	~XX11 n	P	F
Direct Source Selection			~XX12 n	P	F
HDMI		n=1			
DVI-D		n=2			
BNC		n=4			
VGA 1		n=5			
VGA 2		n=6			
VGA 1 SCART		n=7			
VGA 1 Component		n=8			
S-Video		n=9			
Video		n=10			
VGA 2 SCART		n=12			
VGA 2 Component		n=13			
Component RCA		n=14			

#### OSD/Image

Function			ASCII	Pass	Fail
Display Mode	Presentation	n=1	~XX20 n	P	F
	Bright	n=2			
	Movie	n=3			
	sRGB	n=4			
	Classroom	n=7			
	Blackboard	n=8			
	User 1	n=5			
	3D	n=11			
Brightness		n= -50 - +50	~XX21 n	P	F
Contrast		n= -50 - +50	~XX22 n	P	F
Sharpness		n= -15 - +15	~XX23 n	P	F

Function					ASCII	Pass	Fail	
Saturation				n= -50 - +50	~XX45 n	P	F	
Tint				n= -50 - +50	~XX44 n	P	F	
IMAGE /Advanced	BrilliantColor™ 1			n= 0 - 10	~XX34 n	P	F	
	Degamma	Film		n=1	~XX35 n	P	F	
		Video		n=2				
		Graphics		n=3				
		PC		n=4				
	Color Temp.	Warm		n=1	~XX36 n	P	F	
		Medium		n=2				
		Cold		n=3				
	Color Settings	Red	Hue		n=50 ~ 50	~XX170 n	P	F
			Saturation		n=50 ~ 50	~XX171 n	P	F
			Gain		n=50 ~ 50	~XX27 n	P	F
		Green	Hue		n=50 ~ 50	~XX172 n	P	F
			Saturation		n=50 ~ 50	~XX173 n	P	F
			Gain		n=50 ~ 50	~XX28 n	P	F
		Blue	Hue		n=50 ~ 50	~XX174 n	P	F
			Saturation		n=50 ~ 50	~XX175 n	P	F
			Gain		n=50 ~ 50	~XX29 n	P	F
		Cyan	Hue		n=50 ~ 50	~XX176 n	P	F
			Saturation		n=50 ~ 50	~XX177 n	P	F
			Gain		n=50 ~ 50	~XX30 n	P	F
		Yellow	Hue		n=50 ~ 50	~XX178 n	P	F
			Saturation		n=50 ~ 50	~XX179 n	P	F
			Gain		n=50 ~ 50	~XX31 n	P	F
		Magenta	Hue		n=50 ~ 50	~XX180 n	P	F
			Saturation		n=50 ~ 50	~XX181 n	P	F
			Gain		n=50 ~ 50	~XX32 n	P	F
		Reset			n=1	~XX33 n	P	F
	Color Space	Auto		n=1	~XX37 n	P	F	
		RGB		n=2				
		YUV		n=3				
IMAGE /Advanced	Input Source Filters	HDMI		n=1	~XX39 n	P	F	
		DVI-D		n=2				
		BNC		n=4				
		VGA 1		n=5				
		VGA 2		n=6				
		RCA Component		n=8				
		S-Video		n=9				
		Video		n=10				
IMAGE /Advanced	De-Interlace	On		n=1	~XX40 n	P	F	
		Off		n=2 & 0				

## OSD/Display

Function			ASCII	Pass	Fail
Format	4:3	n=1	~XX60 n	P	F
	16:9 I/16:9	n=2			
	16:9 II / 16:10	n=3			
	Native	n=6			
	Auto	n=7			
Overscan		n=0-10	~XX61 n	P	F
Zoom		n= -30 - +100	~XX62 n	P	F
H Image Shift		n= -50 - +50	~XX63 n	P	F
V Image Shift (16:9)		n= -24 - +24	~XX64 n	P	F
V Keystone		n= -30 - +30	~XX66 n	P	F
3D	Off/DLP-Link	n=2&0, n=1	~XX230 n	P	F
3D Sync Invert	On/Off	n=1/n=2 &0	~XX231 n	P	F

## OSD/Setup

Function			ASCII	Pass	Fail
Language	English	n=1	~XX70 n	P	F
	German	n=2			
	French	n=3			
	Italian	n=4			
	Spanish	n=5			
	Portuguese	n=6			
	Polish	n=7			
	Dutch	n=8			
	Swedish	n=9			
	Norwegian/Danish	n=10			
	Finnish	n=11			
	Greek	n=12			
	Traditional Chinese	n=13			
	Simplified Chinese	n=14			
	Japanese	n=15			
	Korean	n=16			
	Russian	n=17			
	Hungarian	n=18			
	Czechoslovak	n=19			
	Arabic	n=20			
	Thai	n=21			
	Turkish	n=22			
Projection	Front-Desktop	n=1	~XX71 n	P	F
	Rear-Desktop	n=2			
	Front-Ceiling	n=3			
	Rear-Ceiling	n=4			
Menu Location	Top Left	n=1	~XX72 n	P	F
	Top Right	n=2			
	Centre	n=3			
	Bottom Left	n=4			
	Bottom Right	n=5			
Signal	Frequency	n= 0~31	~XX73 n	P	F

Function				ASCII	Pass	Fail
	Phase		n= -5 - +5	~XX74 n	P	F
	H. Position		n= -5 - +5	~XX75 n	P	F
	V. Position		n= -5 - +5	~XX76 n	P	F
Security	Security Timer	Hour/Day/Month	nnnnnn	~XX77 n	P	F
	Change Password				send back the password to confirm	
	Security Settings	Enable/Disable	n=1/n=2 & 0	~XX78 n	P	F
Projector ID			n=00-99	~XX79 n	P	F
Audio	Mute	On/Off	n=1/n=2 & 0	~XX80 n	P	F
	Volume		n=0-10	~XX81 n	P	F
Advanced	Logo	Optoma/User	n=1/n=2	~XX82 n	P	F
	Logo Capture		n=1	~XX83 n	P	F
	Closed Captioning	On/Off	n=1/n=2 & 0	~XX88 n	P	F
RS232		RS232	n=1	~XX86 n	P	F
		Network	n=2		P	F

**OSD/Option**

Function				ASCII	Pass	Fail
Source Lock		On/Off	n=1/n=2 & 0	~XX100 n	P	F
High Altitude		On/Off	n=1/n=2 & 0	~XX101 n	P	F
Information Hide		On/Off	n=1/n=2 & 0	~XX102 n	P	F
Keypad Lock		On/Off	n=1/n=2 & 0	~XX103 n	P	F
Background Color	Blue		n=1	~XX104 n	P	F
	Black		n=2			
	Red		n=3			
	Green		n=4			
	White		n=5			
Advanced	Direct Power On	On/Off	n=1/n=2 & 0	~XX105 n	P	F
	Signal Power On	On/Off	n=1/n=2 & 0	~XX113 n	P	F
	Auto Power Off (min)		n=0-180	~XX106 n	P	F
	Sleep Timer (min)		n=000-995	~XX107 n	P	F
	Power Mode(Standby)	ECO mode/Active Mode	n=1/n=2 & 0	~XX114 n	P	F
Lamp Setting	Lamp Hour		n=1	~XX108 n	nnnn	F
	Lamp Reminder	On/Off	n=1/n=2 & 0	~XX109 n	P	F
	Brightness Mode	Bright/STD	n=1/n=2	~XX110 n	P	F
	Lamp Reset	Yes	n=1	~XX111 n	P	F
		No	n=2			
Reset		Yes	n=1	~XX112 n	P	F
		No	n=2			

**Note:** To also include AMX beacon signal in RS232 protocol

In basic terms, AMX controllers will issue a poll periodically to detect 3rd party devices connected to the RS232 port (in this case Optoma). The poll is "AMX" in ASCII followed by a carriage return '\r'.

On recognition of the poll, the Optoma projector will respond with a beacon string (in ASCII) identifying your device. The AMX controller (Branded NetLinx) can then download the interface from the amx website to control your device. An example beacon string for Optoma could be:

AMXB<-SDKClass=VideoProjector><-Make=Optoma><-Model=EX???><-Revision=1.0.0>

The beacon needs to be terminated by a carriage return ('\r', 0x0D)

Revision will indicate the firmware version that is running on the Optoma projector.

Device discovery is also supported over IP if control protocol works across it (most manufacturers take their RS232 command set and also use it for IP on a dedicated application port)



## Information Format: INFOa

Status	Code Definition
Standby Mode	a=0
Warming up	a=1
Cooling Down	a=2
Out of Range	a=3
Lamp Fail	a=4
Thermal Switch Error	a=5
Fan Lock	a=6
Over Temperature	a=7
Lamp Hour Running Out	a=8

## Information display:

Function		ASCII	Display Format	Fail
Information	n=1	~XX150 n	Okabbbbccddde	F

Form at Definition		Code Definition
a = Power State	On	a=1
	Off	a=0
b = Lamp Hour		bbbb
c = Input Source	None	c=0
	HDMI	c=1
	DVI-D	c=2
	BNC	c=3
	VGA 1	c=4
	VGA 2	c=5
	Component RCA	c=6
	S-Video	c=7
	Video	c=8
d = Firmware Version		dddd
e = Display mode	None	e=0
	Presentation	e=1
	Bright	e=2
	Movie	e=3
	sRGB	e=4
	User1	e=5
	User2	e=6
	Classroom	e=7
	Blackboard	e=8

Note: The command ~XX150 n MUST work when projector is in standby mode

## Model Name

Function		ASCII	Display	Depends	Fail
Model Name	n=1	~XX 151 n	Oka	a=1/2/ 1=EX785, 2=EW775	F

## RS232 Version No

Function		ASCII	Display	Depends	Fail
RS232 Version No	n=1	~XX152 n	Oka	a=??	F

## Input Source Display

Function		ACCII	Display	Fail
Input Source	n=1	~XX121 n	Oka	F

Note: The command ~XX121 n MUST work when projector is in standby mode

Status	Code Definition
None	c=0
HDMI	c=1
DVI-D	c=2
BNC	c=3
VGA 1	c=4
VGA 2	c=5
Component RCA	c=6
S-Video	c=7
Video	c=8

**Software Version**

Function		ACCII	Display	Fail
Software Version	n=1	~XX122 n	Okdddd	F

**Display Mode**

Function		ACCII	Display	Fail
Display Mode	n=1	~XX123 n	Oka	F

Status	Code Definition
Presentation	a=0
Bright	a=1
Movie	a=2
sRGB	a=3
User 1	a=4
User 2	a=5
Classroom	a=6
Blackboard	a=7

**Power State**

Function		ACCII	Display	Fail
Power State	n=1	~XX124 n	Oka	F

**Note:** The command ~XX124 n MUST work when projector is in standby mode

Status	Code Definition
On	a=1
Off	a=0

**Brightness**

Function		ACCII	Display	Fail
Brightness	n=1	~XX125 n	Oka	F

**Contrast**

Function		ACCII	Display	Fail
Contrast	n=1	~XX126 n	Oka	F

**Aspect Ratio**

Function		ACCII	Display	Fail
Aspect Ratio	n=1	~XX127 n	Oka	F

Status	Code Definition
4:3	a=0
16:9 I	a=1
16:9 II / 16:10	a=2
Native	a=3
Auto	a=4

## Color Temperature

Function		ASCII	Display	Fail
Color Temperature	n=1	~XX128 n	Oka	F

Status	Code Definition
Warm	a=0
Medium	a=1
Cold	a=2

## Projection Mode

Function		ASCII	Display	Fail
Projection Mode	n=1	~XX129 n	Oka	F

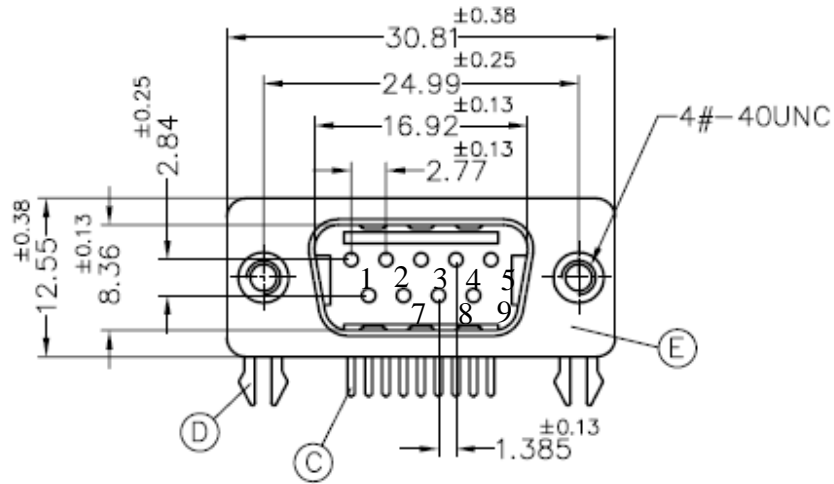
Status	Code Definition
Front-Desktop	a=0
Rear-Desktop	a=1
Front-Ceiling	a=2
Rear-Ceiling	a=3

## Remote control

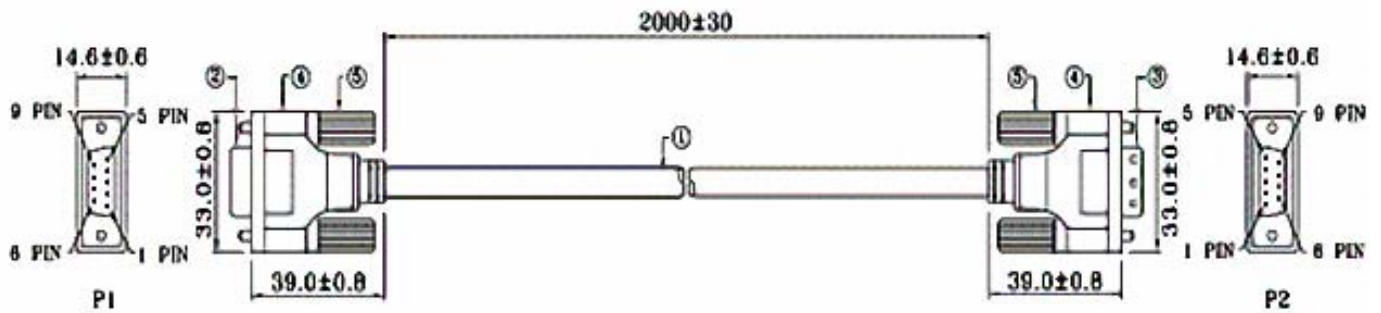
Customer code : 0x32CD

Item	Key Definition		ASCII	Pass	Fail
1	Power	n=1	~XX140 n	P	F
2	Resync	n=2		P	F
3	Keystone	n=3		P	F
4	AV Mute	n=4		P	F
5	Freeze	n=5		P	F
6	Display	n=6		P	F
7	Zoom in	n=7		P	F
8	Zoom out	n=8		P	F
9	Volume +	n=9		P	F
10	Volume -	n=10		P	F
11	Enter (for projection MENU)	n=11		P	F
12	Menu	n=12		P	F
13	Left	n=13		P	F
14	Up	n=14		P	F
15	Right	n=15		P	F
16	Down	n=16		P	F
17	Brightness	n=17		P	F
18	Format/1	n=18		P	F
19	HDMI/2	n=19		P	F
20	YPbPr/3	n=20		P	F
21	Source/4	n=21		P	F
22	DVI/5	n=22		P	F
23	BNC/6	n=23		P	F
24	VGA-1/7	n=24		P	F
25	Video/8	n=25		P	F
26	Video/9	n=26		P	F
27	VGA-2/0	n=27		P	F

## RS232 Connect Diagram



RS232 CABLE



WIRE ARRANGEMENT		
P1	COLOR	P2
1	BLACK	1
2	BROWN	3
3	RED	2
4	ORANGE	4
5	YELLOW	5
6	GREEN	6
7	BLUE	7
8	PURPLE	8
9	GRAY	9
CASE	DRAIN WIRE	CASE

**12. EDID****EX785****a. Analog v1.2**

128 BYTES OF EDID CODE :										
	0	1	2	3	4	5	6	7	8	9
0	00	FF	FF	FF	FF	FF	FF	00	3E	8D
10	11	03	01	01	01	01	01	13	01	03
20	0E	00	00	78	2A	85	25	A1	5A	5A
30	97	25	14	51	58	BF	EF	80	45	59
40	61	59	71	4F	81	00	81	99	90	40
50	A9	40	D1	C0	1E	2D	00	A0	40	00
60	2D	30	30	20	34	00	00	00	00	00
70	00	18	C8	32	00	A0	50	D0	1E	20
80	30	20	55	00	00	00	00	00	00	18
90	00	00	00	FD	00	32	55	0F	5A	11
100	00	0A	20	20	20	20	20	20	00	00
110	00	FC	00	45	58	37	38	35	0A	20
120	20	20	20	20	20	20	00	F0		

- (08-09) ID Manufacturer Name \_\_\_\_\_ = OTM
- (11-10) Product ID Code \_\_\_\_\_ = 0311(Hex), 785(Dec)
- (12-15) Last 5 Digits of Serial Number \_\_\_\_\_ = 16843009(Dec), 01010101(Hex)
- (16) Week of Manufacture \_\_\_\_\_ = 1
- (17) Year of Manufacture \_\_\_\_\_ = 2009
- (18) EDID Version Number \_\_\_\_\_ = 1
- (19) EDID Revision Number \_\_\_\_\_ = 3
- (20) VIDEO INPUT DEFINITION :
- Analog Signal
- 0.700V/0.300V
- Separate
- Composite
- Sync on Green
- (21) Maximum Horizontal Image Size \_\_\_\_\_ = 0 mm
- (22) Maximum Vertical Image Size \_\_\_\_\_ = 0 mm
- (23) Display Gamma \_\_\_\_\_ = 2.20
- (24) DPMS and Supported Feature(s) :
- Preferred Timing Mode
- Active Off
- RGB Color Display
- (25-34) CHROMA INFO :
- RedX : 0.631

**RedY : 0.352**

**GreenX : 0.353**

**GreenY : 0.591**

**BlueX : 0.145**

**BlueY : 0.080**

**WhiteX : 0.317**

**WhiteY : 0.345**

**(35) ESTABLISHED TIMING I :**

**720 X 400 @ 70Hz (IBM,VGA)**

**640 X 480 @ 60Hz (IBM,VGA)**

**640 X 480 @ 67Hz (Apple,Mac II)**

**640 X 480 @ 72Hz (VESA)**

**640 X 480 @ 75Hz (VESA)**

**800 X 600 @ 56Hz (VESA)**

**800 X 600 @ 60Hz (VESA)**

**(36) ESTABLISHED TIMING II :**

**800 X 600 @ 72Hz (VESA)**

**800 X 600 @ 75Hz (VESA)**

**832 X 624 @ 75Hz (Apple, Mac II)**

**1024 X 768 @ 60Hz (VESA)**

**1024 X 768 @ 70Hz (VESA)**

**1024 X 768 @ 75Hz (VESA)**

**1280 X 1024 @ 75Hz (VESA)**

**(37) Manufacturer's Reserved Timing :**

**1152 X 870 @ 75Hz (Apple, Mac II)**

**(38-53) Standard Timing Identification :**

**800 X 600 @ 85Hz**

**1024 X 768 @ 85Hz**

**1152 X 864 @ 75Hz**

**1280 X 800 @ 60Hz**

**1280 X 1024 @ 85Hz**

**1400 X 1050 @ 60Hz**

**1600 X 1200 @ 60Hz**

**1920 X 1080 @ 60Hz**

**( 54- 71) Detailed Timing / Descriptor Block 1 :**

**1024 X 768 : Pixel Clock : 115 MHz**



**Horizontal Image Size : 0 mm      Vertical Image Size : 0 mm**

**Refreshed Mode : Non-Interlaced**

**Horizontal :**

**Active Time : 1024 pixels      Blanking Time : 160 pixels**

**Sync Offset : 48 pixels      Sync Pulse Width : 32 pixels**

**Border : 0 pixels**

**Vertical :**

**Active Time : 768 lines      Blanking Time : 45 lines**

**Sync Offset : 3 lines      Sync Pulse Width : 4 lines**

**Border : 0 lines**

**None(Normal)**

**Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)**

**( 72- 89) Detailed Timing / Descriptor Block 2 :**

**1280 X 720 : Pixel Clock : 130 MHz**

**Horizontal Image Size : 0 mm      Vertical Image Size : 0 mm**

**Refreshed Mode : Non-Interlaced**

**Horizontal :**

**Active Time : 1280 pixels      Blanking Time : 160 pixels**

**Sync Offset : 48 pixels      Sync Pulse Width : 32 pixels**

**Border : 0 pixels**

**Vertical :**

**Active Time : 720 lines      Blanking Time : 30 lines**

**Sync Offset : 5 lines      Sync Pulse Width : 5 lines**

**Border : 0 lines**

**None(Normal)**

**Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)**

**( 90-107) Detailed Timing / Descriptor Block 3 :**

**Monitor Range Limits :**

**Horizontal Freq. : 15-90 kHz**

**Vertical Freq. : 50-85 Hz**

**Pixel Clock : 170 MHz**

**(108-125) Detailed Timing / Descriptor Block 4 :**

**Monitor Name :**

**EX785**

**(126) No Extension EDID Block(s)**

**(127) CheckSum is OK**

**b. Digital v1.3**

EDID Block 0, Bytes 0-127 [00H-7FH]

Block Type: EDID 1.3

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	3E	8D	21	2A	01	01	01	01
10	01	13	01	03	80	00	00	78	0A	85	25	A1	5A	5A	97	25
20	14	51	58	BF	EF	80	45	59	61	59	71	4F	81	00	81	99
30	90	40	A9	40	D1	C0	1E	2D	00	A0	40	00	2D	30	30	20
40	34	00	00	00	00	00	00	18	C8	32	00	A0	50	D0	1E	20
50	30	20	55	00	00	00	00	00	00	18	00	00	00	FD	00	32
60	55	1F	5A	11	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	45	58	37	38	35	0A	20	20	20	20	20	20	20	01	56

(08H-09H) ID Manufacturer Name \_\_\_\_\_ = OTM

(0AH-0BH) Product ID Code \_\_\_\_\_ = 2A21(\*!)

(0CH-0FH) Last 5 Digits of Serial Number \_\_\_\_\_ = UNUSE

(10H) Week of Manufacture \_\_\_\_\_ = 01

(11H) Year of Manufacture \_\_\_\_\_ = 2009

(12H) EDID Version Number \_\_\_\_\_ = 1

(13H) EDID Revision Number \_\_\_\_\_ = 3

(14H) VIDEO INPUT DEFINITION:

Digital Signal

(15H) Maximum Horizontal Image Size \_\_\_\_\_ = mm

(16H) Maximum Vertical Image Size \_\_\_\_\_ = mm

(17H) Display Gamma \_\_\_\_\_ = 2.20

(18H) DPMS and Supported Feature(s):

Preferred Timing Mode

Display Type = R/G/B Color

(19H-22H) CHROMA INFO:

Red x - 0.631 Green x - 0.353 Blue x - 0.145 White x - 0.317

Red y - 0.352 Green y - 0.591 Blue y - 0.080 White y - 0.345

(23H) ESTABLISHED TIMING I:

720 x 400 @ 70Hz (IBM,VGA)

640 x 480 @ 60Hz (IBM,VGA)

640 x 480 @ 67Hz (Apple,Mac II)

640 x 480 @ 72Hz (VESA)

640 x 480 @ 75Hz (VESA)

800 x 600 @ 56Hz (VESA)

**800 x 600 @ 60Hz (VESA)**

**(24H) ESTABLISHED TIMING II:**

**800 x 600 @ 72Hz (VESA)**

**800 x 600 @ 75Hz (VESA)**

**832 x 624 @ 75Hz (Apple,Mac II)**

**1024 x 768 @ 60Hz (VESA)**

**1024 x 768 @ 70Hz (VESA)**

**1024 x 768 @ 75Hz (VESA)**

**1280 x 1024 @ 75Hz (VESA)**

**(25H) Manufacturer's Reserved Timing:**

**1152 x 870 @ 75Hz (Apple,Mac II)**

**(38-53) Standard Timing Identification:**

**Standard Timing ID 1: 800 x 600 @85Hz**

**Standard Timing ID 2: 1024 x 768 @85Hz**

**Standard Timing ID 3: 1152 x 864 @75Hz**

**Standard Timing ID 4: 1280 x 800 @60Hz**

**Standard Timing ID 5: 1280 x 1024 @85Hz**

**Standard Timing ID 6: 1400 x 1050 @60Hz**

**Standard Timing ID 7: 1600 x 1200 @60Hz**

**Standard Timing ID 8: 1920 x 1080 @60Hz**

**(36H-47H) Detailed Timing / Descriptor Block 1:**

**1024x768 Pixel Clock: 115.50 MHz**

**Horizontal Image Size: 0 mm**

**Vertical Image Size: 0 mm**

**Refreshed Mode: Non-Interlaced**

**Normal Display - No Stereo**

**Horizontal:**

**Active Count: 1024 pixels**

**Blanking Count: 160 pixels**

**Sync Offset: 48 pixels**

**Sync Pulse Width: 32 pixels**

**Border: 0 pixels**

**Frequency: 97.55 kHz**

**Vertical:**

**Active Count: 768 lines**

**Blanking Count: 45 lines**

**Sync Offset: 3 lines**

**Sync Pulse Width: 4 lines**

**Border: 0 lines**

**Frequency: 119.99 Hz**

**Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)**

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**(48H-59H) Detailed Timing / Descriptor Block 2:****1280x720 Pixel Clock: 130.00 MHz**

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**Horizontal Image Size: 0 mm****Vertical Image Size: 0 mm****Refreshed Mode: Non-Interlaced****Normal Display - No Stereo****Horizontal:****Active Count: 1280 pixels****Blanking Count: 160 pixels****Sync Offset: 48 pixels****Sync Pulse Width: 32 pixels****Border: 0 pixels****Frequency: 90.28 kHz****Vertical:****Active Count: 720 lines****Blanking Count: 30 lines****Sync Offset: 5 lines****Sync Pulse Width: 5 lines****Border: 0 lines****Frequency: 120.37 Hz****Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)**

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**(5AH-6BH) Detailed Timing / Descriptor Block 3:****Monitor Range Limits:****Min Vertical Freq - 50 Hz****Max Vertical Freq - 85 Hz****Min Horiz. Freq - 31 kHz****Max Horiz. Freq - 90 kHz****Pixel Clock - 170 MHz****GTF - Not Used**

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**(6CH-7DH) Detailed Timing / Descriptor Block 4:****Monitor Name:****EX785****(7EH) Block No: (01) Extension EDID Block(s)****(7FH) CheckSum OK**

**EDID Block 1, Bytes 128-255 [80H-FFH]****Block Type: CEA EDID Timing Extension Version 3**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	20	71	4D	01	02	03	11	12	84	05	13	14	10	06
10	15	1F	23	09	07	04	83	01	00	00	65	03	0C	00	10	00
20	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	13	8E	21	00
30	00	18	8C	0A	D0	90	20	40	31	20	0C	40	55	00	C4	8E
40	21	00	00	19	01	1D	00	72	51	D0	1E	20	6E	28	55	00
50	C4	8E	21	00	00	1F	01	1D	00	BC	52	D0	1E	20	B8	28
60	55	40	C4	8E	21	00	00	1E	00	00	00	00	00	00	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	50

**Extended Block Type: CEA 861B****Detailed Timing Blocks start at Byte:(20H)****Native Format: (0x1)****(03H) DTV (Basic Audio)****(03H) YCbCr (4:4:4)****(03H) YCbCr (4:2:2)****Video Short Block Description:****(05H) 640 x 480 P 59.94/60Hz 4:3****(06H) 720 x 480 P 59.94/60Hz 4:3****(07H) 720 x 480 P 59.94/60Hz 16:9****(08H) 720 x 576 P 50Hz 4:3****(09H) 720 x 576 P 50Hz 16:9****(0AH) 1280 x 720 P 59.94/60Hz 16:9 Native Mode****(0BH) 1920 x 1080 I 59.94/60Hz 16:9****(0CH) 1280 x 720 P 50Hz 16:9****(0DH) 1920 x 1080 I 50Hz 16:9****(0EH) 1920 x 1080 P 59.94/60Hz 16:9****(0FH) 720(1440) x 480 I 59.94/60Hz 4:3****(10H) 720(1440) x 576 I 50Hz 4:3****(11H) 1920 x 1080 P 50Hz 16.9****Audio Short Block Description:****Numbers of Audio Channels (2)****(13H) Linear PCM(IEC60958)****Audio Supported: 32kHz, 44.1kHz, 48kHz****Audio Bit Rate: 24Bit****Speaker Short Block Description:**

Company Confidential

Optoma\_\_\_\_\_

Delta\_\_\_\_\_

**Playload(3 bytes 17H-19H)****Speakers (17H):** FL/FR**18H:** Reserved**19H:** Reserved**Vendor Specific Short Block Description:****Bytes:** 03H, 0CH, 00H, 10H, 00H**(20H - 32H) Detailed Timing Descriptions:****720x480 Pixel Clock: 27.00 MHz****Horizontal Image Size: 531 mm****Vertical Image Size: 398 mm****Refreshed Mode: Non-Interlaced****Normal Display - No Stereo****Horizontal:****Active Count: 720 pixels****Blanking Count: 138 pixels****Sync Offset: 16 pixels****Sync Pulse Width: 62 pixels****Border: 0 pixels****Frequency: 31.47 kHz****Vertical:****Active Count: 480 lines****Blanking Count: 45 lines****Sync Offset: 9 lines****Sync Pulse Width: 6 lines****Border: 0 lines****Frequency: 59.94 Hz****Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)****(32H - 44H) Detailed Timing Descriptions:****720x576 Pixel Clock: 27.00 MHz****Horizontal Image Size: 708 mm****Vertical Image Size: 398 mm****Refreshed Mode: Non-Interlaced****Stereo****Horizontal:****Active Count: 720 pixels****Blanking Count: 144 pixels****Sync Offset: 12 pixels****Sync Pulse Width: 64 pixels****Border: 0 pixels****Frequency: 31.25 kHz****Vertical:****Active Count: 576 lines****Blanking Count: 49 lines****Sync Offset: 5 lines****Sync Pulse Width: 5 lines****Border: 0 lines****Frequency: 50.00 Hz****Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)****(44H - 56H) Detailed Timing Descriptions:****1280x720 Pixel Clock: 74.25 MHz**



---

**Horizontal Image Size: 708 mm**  
**Refreshed Mode: Non-Interlaced**

**Vertical Image Size: 398 mm**  
**Stereo**

**Horizontal:**

**Active Count: 1280 pixels**  
**Sync Offset: 110 pixels**  
**Border: 0 pixels**

**Blanking Count: 370 pixels**  
**Sync Pulse Width: 40 pixels**  
**Frequency: 45.00 kHz**

**Vertical:**

**Active Count: 720 lines**  
**Sync Offset: 5 lines**  
**Border: 0 lines**

**Blanking Count: 30 lines**  
**Sync Pulse Width: 5 lines**  
**Frequency: 60.00 Hz**

**Digital Separate, Horizontal Polarity (+) Vertical Polarity (+)**

**(56H - 68H) Detailed Timing Descriptions:**

**1280x720 Pixel Clock: 74.25 MHz**

---

**Horizontal Image Size: 708 mm**  
**Refreshed Mode: Non-Interlaced**

**Vertical Image Size: 398 mm**  
**Normal Display - No Stereo**

**Horizontal:**

**Active Count: 1280 pixels**  
**Sync Offset: 440 pixels**  
**Border: 0 pixels**

**Blanking Count: 700 pixels**  
**Sync Pulse Width: 40 pixels**  
**Frequency: 37.50 kHz**

**Vertical:**

**Active Count: 720 lines**  
**Sync Offset: 5 lines**  
**Border: 0 lines**

**Blanking Count: 30 lines**  
**Sync Pulse Width: 5 lines**  
**Frequency: 50.00 Hz**

**Digital Separate, Horizontal Polarity (+) Vertical Polarity (+)**

**(7FH) CheckSum Valid**

**EW775****a. Analog**

128 BYTES OF EDID CODE :										
	0	1	2	3	4	5	6	7	8	9
0	00	FF	FF	FF	FF	FF	FF	00	3E	8D
10	07	03	01	01	01	01	01	13	01	03
20	0E	00	00	78	2A	85	25	A1	5A	5A
30	97	25	14	51	58	BF	EF	80	45	59
40	61	59	71	4F	81	00	81	99	90	40
50	A9	40	D1	C0	1E	2D	00	A0	40	00
60	2D	30	30	20	34	00	00	00	00	00
70	00	18	C8	32	00	A0	50	D0	1E	20
80	30	20	55	00	00	00	00	00	00	18
90	00	00	00	FD	00	32	55	0F	5A	11
100	00	0A	20	20	20	20	20	20	00	00
110	00	FC	00	45	57	37	37	35	0A	20
120	20	20	20	20	20	20	00	FC		

- (08-09) ID Manufacturer Name \_\_\_\_\_ = OTM
- (11-10) Product ID Code \_\_\_\_\_ = 0307(Hex), 775(Dec)
- (12-15) Last 5 Digits of Serial Number \_\_\_\_\_ = 16843009(Dec), 01010101(Hex)
- (16) Week of Manufacture \_\_\_\_\_ = 1
- (17) Year of Manufacture \_\_\_\_\_ = 2009
- (18) EDID Version Number \_\_\_\_\_ = 1
- (19) EDID Revision Number \_\_\_\_\_ = 3
- (20) VIDEO INPUT DEFINITION :
- Analog Signal
- 0.700V/0.300V
- Separate
- Composite
- Sync on Green
- (21) Maximum Horizontal Image Size \_\_\_\_\_ = 0 mm
- (22) Maximum Vertical Image Size \_\_\_\_\_ = 0 mm
- (23) Display Gamma \_\_\_\_\_ = 2.20
- (24) DPMS and Supported Feature(s) :
- Preferred Timing Mode
- Active Off
- RGB Color Display
- (25-34) CHROMA INFO :
- RedX : 0.631

**RedY : 0.352**

**GreenX : 0.353**

**GreenY : 0.591**

**BlueX : 0.145**

**BlueY : 0.080**

**WhiteX : 0.317**

**WhiteY : 0.345**

**(35) ESTABLISHED TIMING I :**

**720 X 400 @ 70Hz (IBM,VGA)**

**640 X 480 @ 60Hz (IBM,VGA)**

**640 X 480 @ 67Hz (Apple,Mac II)**

**640 X 480 @ 72Hz (VESA)**

**640 X 480 @ 75Hz (VESA)**

**800 X 600 @ 56Hz (VESA)**

**800 X 600 @ 60Hz (VESA)**

**(36) ESTABLISHED TIMING II :**

**800 X 600 @ 72Hz (VESA)**

**800 X 600 @ 75Hz (VESA)**

**832 X 624 @ 75Hz (Apple, Mac II)**

**1024 X 768 @ 60Hz (VESA)**

**1024 X 768 @ 70Hz (VESA)**

**1024 X 768 @ 75Hz (VESA)**

**1280 X 1024 @ 75Hz (VESA)**

**(37) Manufacturer's Reserved Timing :**

**1152 X 870 @ 75Hz (Apple, Mac II)**

**(38-53) Standard Timing Identification :**

**800 X 600 @ 85Hz**

**1024 X 768 @ 85Hz**

**1152 X 864 @ 75Hz**

**1280 X 800 @ 60Hz**

**1280 X 1024 @ 85Hz**

**1400 X 1050 @ 60Hz**

**1600 X 1200 @ 60Hz**

**1920 X 1080 @ 60Hz**

**( 54- 71) Detailed Timing / Descriptor Block 1 :**

**1024 X 768 : Pixel Clock : 115 MHz**

**Horizontal Image Size : 0 mm      Vertical Image Size : 0 mm**

**Refreshed Mode : Non-Interlaced**

**Horizontal :**

**Active Time : 1024 pixels      Blanking Time : 160 pixels**

**Sync Offset : 48 pixels      Sync Pulse Width : 32 pixels**

**Border : 0 pixels**

**Vertical :**

**Active Time : 768 lines      Blanking Time : 45 lines**

**Sync Offset : 3 lines      Sync Pulse Width : 4 lines**

**Border : 0 lines**

**None(Normal)**

**Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)**

**( 72- 89) Detailed Timing / Descriptor Block 2 :**

**1280 X 720 : Pixel Clock : 130 MHz**

**Horizontal Image Size : 0 mm      Vertical Image Size : 0 mm**

**Refreshed Mode : Non-Interlaced**

**Horizontal :**

**Active Time : 1280 pixels      Blanking Time : 160 pixels**

**Sync Offset : 48 pixels      Sync Pulse Width : 32 pixels**

**Border : 0 pixels**

**Vertical :**

**Active Time : 720 lines      Blanking Time : 30 lines**

**Sync Offset : 5 lines      Sync Pulse Width : 5 lines**

**Border : 0 lines**

**None(Normal)**

**Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)**

**( 90-107) Detailed Timing / Descriptor Block 3 :**

**Monitor Range Limits :**

**Horizontal Freq. : 15-90 kHz**

**Vertical Freq. : 50-85 Hz**

**Pixel Clock : 170 MHz**

**(108-125) Detailed Timing / Descriptor Block 4 :**

**Monitor Name :**

**EW775**

**(126) No Extension EDID Block(s)**

**(127) CheckSum is OK**

**b. Digital****EDID Block 0, Bytes 0-127 [00H-7FH]****Block Type: EDID 1.3**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	3E	8D	17	2A	01	01	01	01
10	01	13	01	03	80	00	00	78	0A	85	25	A1	5A	5A	97	25
20	14	51	58	BF	EF	80	45	59	61	59	71	4F	81	00	81	99
30	90	40	A9	40	D1	C0	1E	2D	00	A0	40	00	2D	30	30	20
40	34	00	00	00	00	00	00	18	C8	32	00	A0	50	D0	1E	20
50	30	20	55	00	00	00	00	00	00	18	00	00	00	FD	00	32
60	55	1F	5A	11	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	45	57	37	37	35	0A	20	20	20	20	20	20	20	01	62

**(08H-09H) ID Manufacturer Name \_\_\_\_\_ = OTM****(0AH-0BH) Product ID Code \_\_\_\_\_ = 2A17(\*)****(0CH-0FH) Last 5 Digits of Serial Number \_\_\_\_\_ = UNUSE****(10H) Week of Manufacture \_\_\_\_\_ = 01****(11H) Year of Manufacture \_\_\_\_\_ = 2009****(12H) EDID Version Number \_\_\_\_\_ = 1****(13H) EDID Revision Number \_\_\_\_\_ = 3****(14H) VIDEO INPUT DEFINITION:****Digital Signal****(15H) Maximum Horizontal Image Size \_\_\_\_\_ = mm****(16H) Maximum Vertical Image Size \_\_\_\_\_ = mm****(17H) Display Gamma \_\_\_\_\_ = 2.20****(18H) DPMS and Supported Feature(s):****Preferred Timing Mode****Display Type = R/G/B Color****(19H-22H) CHROMA INFO:****Red x - 0.631 Green x - 0.353 Blue x - 0.145 White x - 0.317****Red y - 0.352 Green y - 0.591 Blue y - 0.080 White y - 0.345****(23H) ESTABLISHED TIMING I:****720 x 400 @ 70Hz (IBM,VGA)****640 x 480 @ 60Hz (IBM,VGA)****640 x 480 @ 67Hz (Apple,Mac II)****640 x 480 @ 72Hz (VESA)****640 x 480 @ 75Hz (VESA)****800 x 600 @ 56Hz (VESA)**

- 800 x 600 @ 60Hz (VESA)**
- (24H) ESTABLISHED TIMING II:**
- 800 x 600 @ 72Hz (VESA)**
- 800 x 600 @ 75Hz (VESA)**
- 832 x 624 @ 75Hz (Apple,Mac II)**
- 1024 x 768 @ 60Hz (VESA)**
- 1024 x 768 @ 70Hz (VESA)**
- 1024 x 768 @ 75Hz (VESA)**
- 1280 x 1024 @ 75Hz (VESA)**
- (25H) Manufacturer's Reserved Timing:**
- 1152 x 870 @ 75Hz (Apple,Mac II)**
- (38-53) Standard Timing Identification:**
- Standard Timing ID 1: 800 x 600 @85Hz**
- Standard Timing ID 2: 1024 x 768 @85Hz**
- Standard Timing ID 3: 1152 x 864 @75Hz**
- Standard Timing ID 4: 1280 x 800 @60Hz**
- Standard Timing ID 5: 1280 x 1024 @85Hz**
- Standard Timing ID 6: 1400 x 1050 @60Hz**
- Standard Timing ID 7: 1600 x 1200 @60Hz**
- Standard Timing ID 8: 1920 x 1080 @60Hz**

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**(36H-47H) Detailed Timing / Descriptor Block 1:**

**1024x768 Pixel Clock: 115.50 MHz**

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**Horizontal Image Size: 0 mm**

**Vertical Image Size: 0 mm**

**Refreshed Mode: Non-Interlaced**

**Normal Display - No Stereo**

**Horizontal:**

**Active Count: 1024 pixels**

**Blanking Count: 160 pixels**

**Sync Offset: 48 pixels**

**Sync Pulse Width: 32 pixels**

**Border: 0 pixels**

**Frequency: 97.55 kHz**

**Vertical:**

**Active Count: 768 lines**

**Blanking Count: 45 lines**

**Sync Offset: 3 lines**

**Sync Pulse Width: 4 lines**

**Border: 0 lines**

**Frequency: 119.99 Hz**

**Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)**

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**(48H-59H) Detailed Timing / Descriptor Block 2:****1280x720 Pixel Clock: 130.00 MHz**

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**Horizontal Image Size: 0 mm**  
**Refreshed Mode: Non-Interlaced****Vertical Image Size: 0 mm**  
**Normal Display - No Stereo****Horizontal:****Active Count: 1280 pixels**  
**Sync Offset: 48 pixels**  
**Border: 0 pixels****Blanking Count: 160 pixels**  
**Sync Pulse Width: 32 pixels**  
**Frequency: 90.28 kHz****Vertical:****Active Count: 720 lines**  
**Sync Offset: 5 lines**  
**Border: 0 lines****Blanking Count: 30 lines**  
**Sync Pulse Width: 5 lines**  
**Frequency: 120.37 Hz****Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)**

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**(5AH-6BH) Detailed Timing / Descriptor Block 3:****Monitor Range Limits:****Min Vertical Freq - 50 Hz**  
**Max Vertical Freq - 85 Hz**  
**Min Horiz. Freq - 31 kHz**  
**Max Horiz. Freq - 90 kHz**  
**Pixel Clock - 170 MHz**  
**GTF - Not Used**

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**(6CH-7DH) Detailed Timing / Descriptor Block 4:****Monitor Name:****EW775****(7EH) Block No: (01) Extension EDID Block(s)****(7FH) CheckSum OK**



**EDID Block 1, Bytes 128-255 [80H-FFH]****Block Type: CEA EDID Timing Extension Version 3**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	20	71	4D	01	02	03	11	12	84	05	13	14	10	06
10	15	1F	23	09	07	04	83	01	00	00	65	03	0C	00	10	00
20	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	13	8E	21	00
30	00	18	8C	0A	D0	90	20	40	31	20	0C	40	55	00	C4	8E
40	21	00	00	19	01	1D	00	72	51	D0	1E	20	6E	28	55	00
50	C4	8E	21	00	00	1F	01	1D	00	8C	52	D0	1E	20	B8	28
60	55	40	C4	8E	21	00	00	1E	00	00	00	00	00	00	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	50

**Extended Block Type: CEA 861B****Detailed Timing Blocks start at Byte:(20H)****Native Format: (0x1)****(03H) DTV (Basic Audio)****(03H) YCbCr (4:4:4)****(03H) YCbCr (4:2:2)****Video Short Block Description:****(05H) 640 x 480 P 59.94/60Hz 4:3****(06H) 720 x 480 P 59.94/60Hz 4:3****(07H) 720 x 480 P 59.94/60Hz 16:9****(08H) 720 x 576 P 50Hz 4:3****(09H) 720 x 576 P 50Hz 16:9****(0AH) 1280 x 720 P 59.94/60Hz 16:9 Native Mode****(0BH) 1920 x 1080 I 59.94/60Hz 16:9****(0CH) 1280 x 720 P 50Hz 16:9****(0DH) 1920 x 1080 I 50Hz 16:9****(0EH) 1920 x 1080 P 59.94/60Hz 16:9****(0FH) 720(1440) x 480 I 59.94/60Hz 4:3****(10H) 720(1440) x 576 I 50Hz 4:3****(11H) 1920 x 1080 P 50Hz 16.9****Audio Short Block Description:****Numbers of Audio Channels (2)****(13H) Linear PCM(IEC60958)****Audio Supported: 32kHz, 44.1kHz, 48kHz****Audio Bit Rate: 24Bit**

**Speaker Short Block Description:****Payload(3 bytes 17H-19H)****Speakers (17H):** FL/FR**18H:** Reserved**19H:** Reserved**Vendor Specific Short Block Description:****Bytes:** 03H, 0CH, 00H, 10H, 00H**(20H - 32H) Detailed Timing Descriptions:****720x480 Pixel Clock: 27.00 MHz****Horizontal Image Size: 531 mm****Vertical Image Size: 398 mm****Refreshed Mode: Non-Interlaced****Normal Display - No Stereo****Horizontal:****Active Count: 720 pixels****Blanking Count: 138 pixels****Sync Offset: 16 pixels****Sync Pulse Width: 62 pixels****Border: 0 pixels****Frequency: 31.47 kHz****Vertical:****Active Count: 480 lines****Blanking Count: 45 lines****Sync Offset: 9 lines****Sync Pulse Width: 6 lines****Border: 0 lines****Frequency: 59.94 Hz****Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)****(32H - 44H) Detailed Timing Descriptions:****720x576 Pixel Clock: 27.00 MHz****Horizontal Image Size: 708 mm****Vertical Image Size: 398 mm****Refreshed Mode: Non-Interlaced****Stereo****Horizontal:****Active Count: 720 pixels****Blanking Count: 144 pixels****Sync Offset: 12 pixels****Sync Pulse Width: 64 pixels****Border: 0 pixels****Frequency: 31.25 kHz****Vertical:****Active Count: 576 lines****Blanking Count: 49 lines****Sync Offset: 5 lines****Sync Pulse Width: 5 lines****Border: 0 lines****Frequency: 50.00 Hz****Digital Separate, Horizontal Polarity (-) Vertical Polarity (-)****(44H - 56H) Detailed Timing Descriptions:**

**1280x720 Pixel Clock: 74.25 MHz**

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**Horizontal Image Size: 708 mm****Vertical Image Size: 398 mm****Refreshed Mode: Non-Interlaced****Stereo****Horizontal:****Active Count: 1280 pixels****Blanking Count: 370 pixels****Sync Offset: 110 pixels****Sync Pulse Width: 40 pixels****Border: 0 pixels****Frequency: 45.00 kHz****Vertical:****Active Count: 720 lines****Blanking Count: 30 lines****Sync Offset: 5 lines****Sync Pulse Width: 5 lines****Border: 0 lines****Frequency: 60.00 Hz****Digital Separate, Horizontal Polarity (+) Vertical Polarity (+)****(56H - 68H) Detailed Timing Descriptions:****1280x720 Pixel Clock: 74.25 MHz**

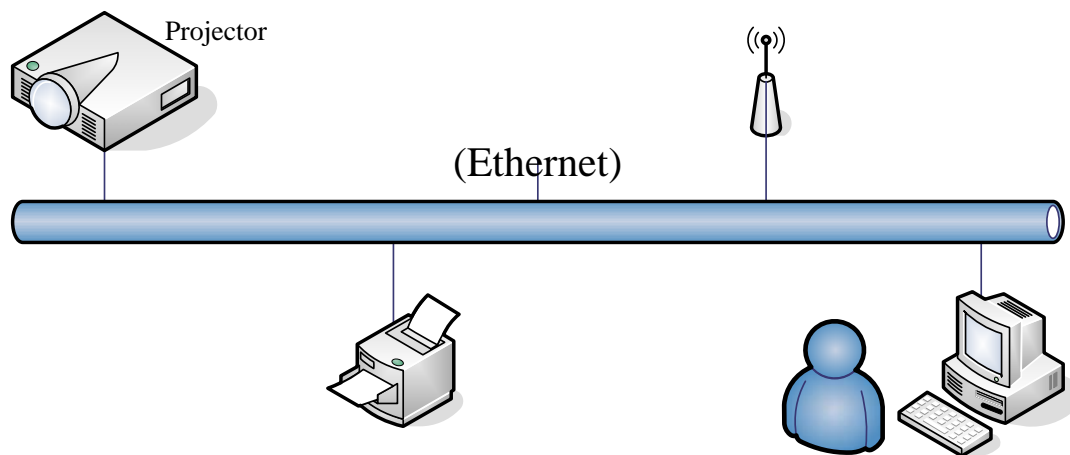
---

**Horizontal Image Size: 708 mm****Vertical Image Size: 398 mm****Refreshed Mode: Non-Interlaced****Normal Display - No Stereo****Horizontal:****Active Count: 1280 pixels****Blanking Count: 700 pixels****Sync Offset: 440 pixels****Sync Pulse Width: 40 pixels****Border: 0 pixels****Frequency: 37.50 kHz****Vertical:****Active Count: 720 lines****Blanking Count: 30 lines****Sync Offset: 5 lines****Sync Pulse Width: 5 lines****Border: 0 lines****Frequency: 50.00 Hz****Digital Separate, Horizontal Polarity (+) Vertical Polarity (+)****(7FH)****Checksum Valid**

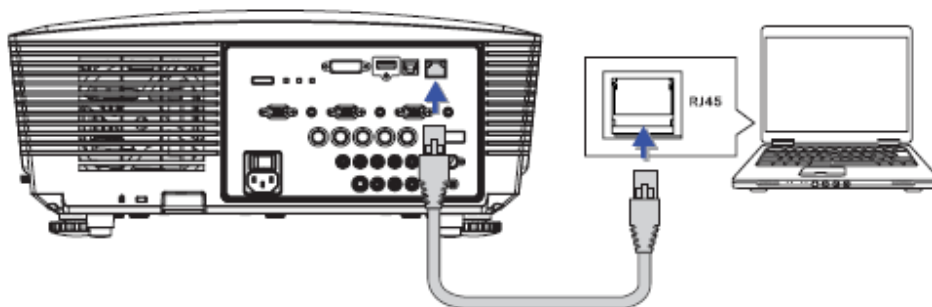
### 13. RJ45

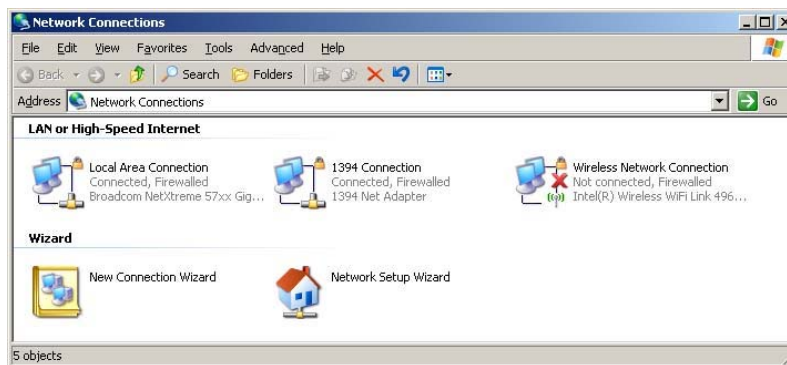
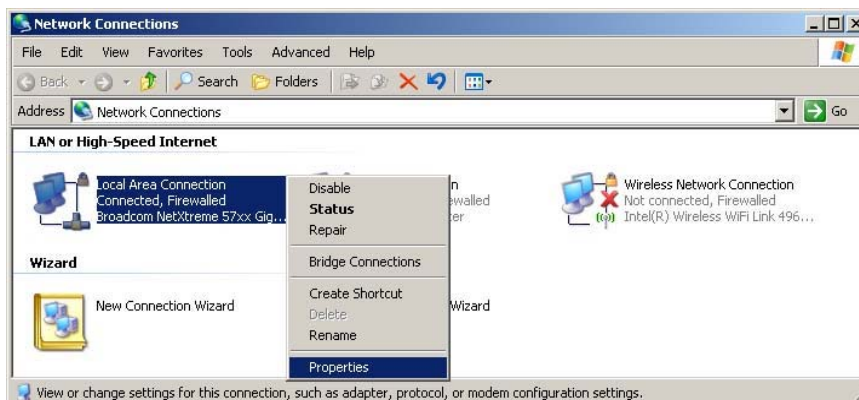
For simplicity and easy of operation, the Optoma projector provides additional diverse networking and remote management features.

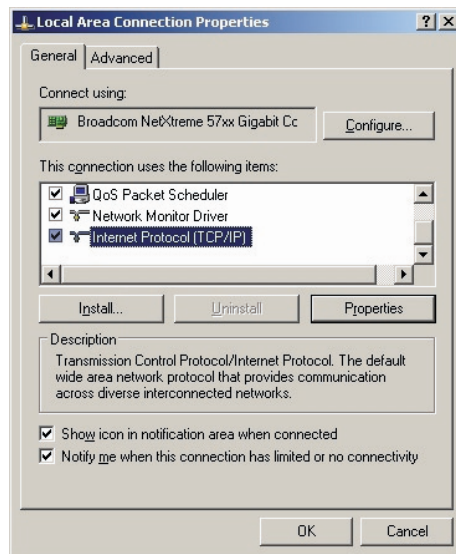
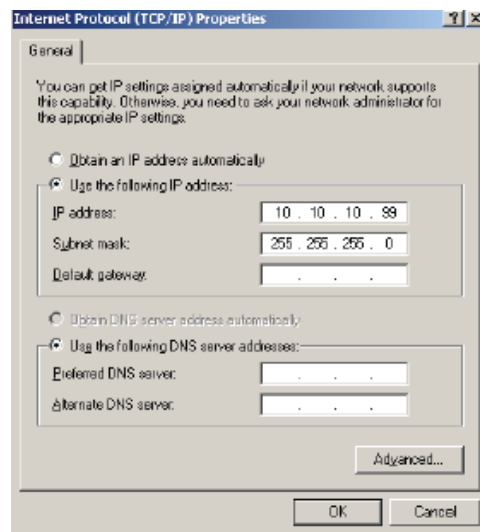
The LAN / RJ45 function of the projector through a network, such as remotely manage; Power On/Off, brightness/ Contrast settings. Also, projector status information, such as: Video-Source/ Sound-Mute... etc,



#### 13-1. Connect the RJ45 cable to RJ45 ports on the projector and the PC (Laptop).



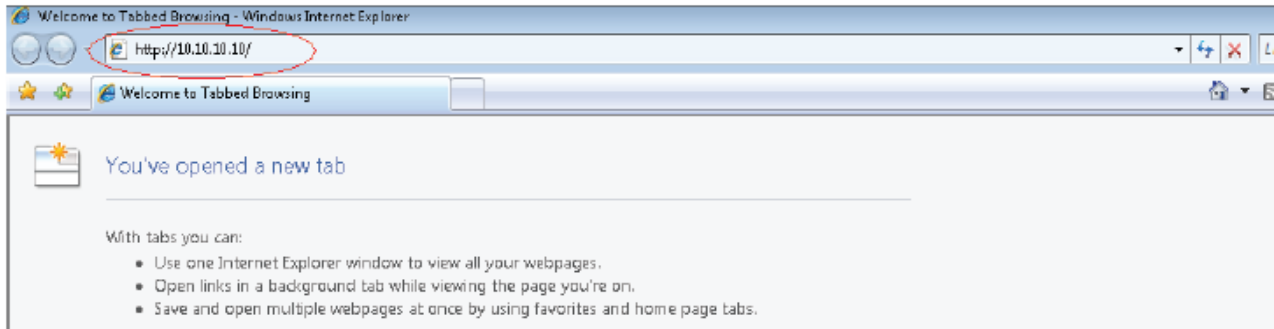
**13-2. On the PC (Laptop), select Start-> Control Panel-> Network connections.****13-3. Right Click on your Local Area Connection, and select Property.****13-4. In the Properties window, select the General tab, and select Internet Protocol (TCP/IP).**

**13-5. Click Properties.****13-6. Fill in the IP address and Subnet mask, then press OK.****13-7. Press the Menu button on the projector.****13-8. Select OSD-> SETUP-> Network-> Enabled.****DHCP -> OFF****13-9. Input the following:****IP Address: 10.10.10.10****Subnet Mask: 255.255.255.0****Gateway: 0.0.0.0****DNS Server: 0.0.0.0**

**13-10. Press Apply (Enter) to confirm settings.**

**13-11. Open a web browser**

**(ex, Microsoft Internet Explorer with Adobe Flash Player 9.0 or high).**



**13-12. In the Address bar, input the IP address: 10.10.10.10.**

**13-13. Press Apply.**

**The projector is setup for remote management.**

**The LAN / RJ45 function displays as follows.**





**14. EX785\_DP-3638 & EW775\_DP-7606 Spare part list**

TYPE	NO	DESCRIPTION	P/N	EX785	EW775	Q'ty
Cover assy	1	CASE TOP ASSY HT8601 OPTOMA	3398045501	V	V	1
Cover assy	2	CASE BOTTOM ASSY HT8601 OPTOMA	3398044502	V	V	1
Cover assy	3	CASE FRONT ASSY HT8601 OPTOMA	3398044601	V	V	1
Cover	4	IO COVER PC 945VB BLK	3392116600	V	V	1
Cover	5	LAMP COVER PPS 94V0 BLK	3392109400	V	V	1
Cover	6	LENS KNOB PC 94V0 BLK	3392111600	V	V	1
Filter	7	FILTER PPS+GF 94V0 BLK	3392112400	V	V	1
Filter PU	8	FILTER PU 94VHF1 71*49.5*3.5 BLK	3243153401	V	V	1
ADJ FOOT	9	ADJ FOOT	3390704100	V	V	1
	10	FOOT RUB 18*14.5 BLK	3245059600	V	V	1
Fan1	11	DC FAN ASSY BFB0612H-SE03 L110/50 60 B	3620640411	V	V	1
Fan3	12	DC FAN ASSY NFB10512HF-SE00 L85/25 105 B	3620101011	V	V	1
Fan2	13	DC FAN ASSY AUB0812H-SE17 L130/70 80 S	3622838011	V	V	1
Board	14	PWB ASSY MAIN BOARD H7T-01-OHDME	5600601198	V	V	1
Board	15	PWB ASSY THERMAL DIODE BOARD H7T	5600601074	V	V	1
Board	16	PWB ASSY POWER BD HT-8601	5600601052	V	V	1
Board	17	PWB ASSY DMD BOARD H7T	5600601201	V	V	1
Board	18	PWB ASSY KEYPAD BD ASSY	5600601203	V	V	1
Board	19	PWB ASSY IRIS BOARD H7T	5600601072	V	V	1
Board	20	PWB ASSY IO BOARD H7T-01	5600601200	V	V	1
Board	21	PWB ASSY IR BOARD H7T-01	5600601070	V	V	1
Board	22	PWB ASSY INDEX BOARD	5600601314	V	V	1
Ballast	23	LAMP DRIVER 330W UNISHAPE O3 TOP	0990078600	V	V	1
C/W	24	Color Wheel HT-8601	3797709100	V	V	1

LAMP	25	LAMP HOUSING ASSY 330W HT-8601	5811116283-SOT	V	V	1
Optical	26	OPTICAL ENGINE ASSY DP-3638 1080P	5811116247-S	V		1
	27	OPTICAL ENGINE ASSY DP-7606 1080P	5811116238-S		V	
Carton	28	CARTON CRGD PAPER 647*552*384 (USA TW)	3513687000	V	V	1
Switch	29	SWITCH ASSY CASE OPEN	3606012400	V	V	1
Thermal	30	WIRE WITH THERMISTOR	3791106800	V	V	1
Block	31	END BLOCK EPE 600*500*160 WHT	3501506601	V	V	1
	32	END BLOCK EPE 600*500*198 WHT	3501506700	V	V	1
BAG PE	33	BAG PE 450*530	3500957300	V	V	1
Cord	34	AC POWER CORD 3P #18*3C L1800 BLK	3090107601	V	V	1
Cable	35	CABLE SIGNAL D-SUB D-SUB L2000 BLK	3080411602	V	V	1
Cable	36	CABLE SIGNAL RCA RCA L1800 YEL	3080301101	V	V	1
Cable	37	CABLE FFC L230 WHT (M/B TO KEYPAD/B)	3081508301	V	V	1
CD	38	CD SOFTWARE PACKING ASSY	3534103700	V	V	1
Manual	39	CARD QUICK START DP3638 OPTOMA	5010088900	V	V	1
Remote	40	REMOTE CONTROLLER 36KEYS	5041820300	V	V	1

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
				
<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
				
<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>
				
<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
				
<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
				

26	27	28	29	30
				
31	32	33	34	35
				
36	37	38	39	40
				